

Mr. Richard Sumrall, P.E.  
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Subject:  
Analytical Results of Roll-Off Box Samples  
Hercules Incorporated – Hattiesburg Facility  
Hattiesburg, Forrest County, Mississippi  
Agency Interest No. 2022

ENVIRONMENT

Dear Mr. Sumrall:

Date:  
22 October 2013

In November 2012, Hercules Incorporated began activities to decommission the Impoundment Basin (IB) in accordance with the August 2, 2013, *Revised Impoundment Basin Decommissioning Work Plan* (Work Plan). The Work Plan was submitted to and approved by the Mississippi Department of Environmental Quality (MDEQ) prior to the start of field activities.

Contact:  
John Ellis

Decommissioning field activities included removing vegetation and sludge that did not require dewatering by the belt filter press from the baffles within the western end of the IB and dewatering sludge within the main portion of the IB with a belt filter press. The dewatered sludge from the belt filter press was placed into roll-off boxes for subsequent characterization. A total of fourteen roll-off boxes of material were generated during the initial decommissioning activities. Three boxes were filled directly from the IB, while the remaining eleven roll-off boxes were filled with sludge dewatered by the belt filter press.

Extension:  
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The three roll-off boxes filled directly from the IB contained vegetation growing at the surface of the IB and sludge that did not require dewatering by the belt filter. This material was generally present adjacent to the baffles in the western end of the IB and represents sludge that had accumulated during the operation of the IB, but could not be accessed during prior cleanings because of concern regarding potential damage to the baffles. This material was not dewatered by the belt filter press because it was too thick to pump and contained vegetation, which would have fouled the press. The vegetation and sludge from this area were placed directly in the roll-off boxes with an excavator after the free liquids drained from the material.

Email:  
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Prior to off-site disposal, a composite sludge sample was obtained from each of the fourteen boxes and submitted to TestAmerica, Inc.'s Savannah, Georgia, analytical laboratory and analyzed by the toxicity characteristic leaching procedure (TCLP) for volatile organic compounds (TCLP-VOCs) by U.S. Environmental Protection Agency

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(USEPA) Method 1311/8260B. Copies of the laboratory reports are included in Attachment A.

The results of the TCLP-VOC analyses were compared to the Toxicity Characteristic (TC) limits. The TCLP-VOC results and trip blank results are included in Tables 1 and 2, respectively. The comparison of these data to the TC limit indicated that thirteen roll-off boxes had concentrations below the TC limit. Those thirteen boxes were disposed of at Pine Belt Regional Landfill in Ovett, Mississippi, between December 21, 2012, and January 22, 2013, which is the landfill identified in the MDEQ-approved Work Plan.

One roll-off box (RB-1046) had a reported TCLP benzene concentration of 0.56 milligram per liter (mg/L), which is slightly above the TC limit of 0.5 mg/L. This sample was collected from one of the three boxes that contained the vegetation and consolidated material which was not dewatered through the belt filter press. The fact that one of the three boxes filled with this material had a TCLP concentration slightly above the TC Limit for benzene is likely due to the age of the sludge present in this area. Because removal of sludge adjacent to the baffles was difficult and facility personnel did not operate the sludge pumper too close to the baffles on account of concern regarding damage to these structures, this sludge most likely represents material that was generated pre-1990, but was not removed during the post-1990 sludge removal campaigns.

Because the roll-off box sample exceeded the benzene TC limit, a sample was collected from RB-1046 for the evaluation of land disposal restrictions (LDRs) and underlying hazardous constituents (UHCs). The supplemental analyte list included:

- VOCs by USEPA SW-846 Method 8260B;
- Semivolatile organic compounds by USEPA SW-846 Method 8270C - Low Level (LL);
- Organochlorine pesticides and polychlorinated biphenyls by USEPA SW-846 Methods 8081A and 8082;
- Herbicides by USEPA SW-846 Method 8151A;
- Metals by USEPA SW-846 Method 6020;
- Mercury by USEPA SW-846 Method 7471A;
- Cyanide by USEPA SW-846 Method 9012A;
- Sulfide by USEPA SW-846 Method 9034; and
- Anions by USEPA SW-846 Method 9056.

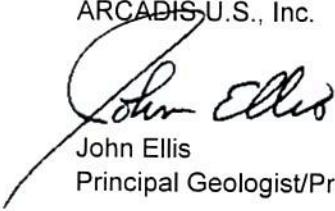
The results are presented in Table 3. A copy of the laboratory report is provided in Attachment A. Based on the TCLP and UHC results, roll-off box RB-1046 was disposed of on April 10, 2013, at Clean Harbors Deer Park, LLC, a permitted

hazardous waste incinerator located in LaPorte, Texas. The facility is permitted to receive Resource Conservation and Recovery Act (RCRA) hazardous waste, polychlorinated biphenyls (PCBs), animal and plant health inspection services (APHIS) quarantine soils, and non-regulated waste material.

Please contact Mr. Tim Hassett, Hercules Project Coordinator, at (302) 995-3456 or Mr. John Ellis, ARCADIS, at (225) 292-1004 if you have any questions regarding this correspondence.

Sincerely,

ARCADIS U.S., Inc.



John Ellis  
Principal Geologist/Project Manager

Copies:

Mr. Willie McKercher, MDEQ  
Ms. Melissa McGee-Collier, MDEQ  
Mr. Timothy Hassett, Hercules  
Mr. Gary Rikard, Butler Snow  
Mr. William N. Reed, Baker Donelson

## Tables

Table 1. Summary of Toxicity Characteristic Leaching Procedure (TCLP) Results, Roll-Off Box Samples, Hercules Incorporated, Hattiesburg Mississippi.

Location ID: Date Collected:	Federal (RCRA-TCLP) Hazardous Waste Criteria (mg/L) <sup>1</sup>	Units	RB-1027-1130	RB-1042-1130	RB-1003-1205	RB-1019-1205	RB-1047-1205	RB-1008-1212	RB-1045-1212
			11/30/12	11/30/12	12/05/12	12/05/12	12/05/12	12/12/12	12/12/12
<b>TCLP Volatile Organic Compounds Method 8260B</b>									
1,1-Dichloroethene	0.7	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	0.5	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2-Butanone	200	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzene	0.5	mg/L	<b>0.047</b>	<b>0.068</b>	<b>0.056</b>	<b>0.082</b>	<b>0.08</b>	<b>0.043</b>	<b>0.069</b>
Carbon tetrachloride	0.5	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	100	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	6	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Tetrachloroethene	0.7	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	0.5	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Vinyl chloride	0.2	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
<b>Other Parameters</b>									
Percent moisture	NAV	%	<b>55</b>	<b>59</b>	<b>59</b>	<b>65</b>	<b>62</b>	<b>57</b>	<b>55</b>
Percent solids	NAV	%	<b>45</b>	<b>41</b>	<b>41</b>	<b>35</b>	<b>38</b>	<b>43</b>	<b>45</b>

<sup>1</sup> - Regulatory Limits for nonhazardous waste obtained from 40 CFR Part 261.

Shading indicates that a detection exceeds the Federal (RCRA-TCLP) Hazardous Waste Criteria Standard.

**Bold** - Above detection limit.

CFR - Code of Federal Regulations.

mg/L - Milligram per liter.

NAV - Not available.

RCRA - Resource Conservation and Recovery Act.

TCLP - Toxicity Characteristic Leaching Procedure.

Table 1. Summary of Toxicity Characteristic Leaching Procedure (TCLP) Results, Roll-Off Box Samples, Hercules Incorporated, Hattiesburg Mississippi.

Location ID:	Federal (RCRA-TCLP) Hazardous Waste Criteria (mg/L) <sup>1</sup>	Units	RB-1023-1212	RB-1010-1214	RB-1012-1218	RB-1040-1219	RB-1046-1219	RB-1048-1220	RB-1022-1220
			12/12/12	12/14/12	12/18/12	12/19/12	12/19/12	12/20/12	12/20/12
<b>TCLP Volatile Organic Compounds Method 8260B</b>									
1,1-Dichloroethene	0.7	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	0.5	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2-Butanone	200	mg/L	<0.2	<0.2	<0.2	<0.2*	<0.2*	<0.2	<0.2*
Benzene	0.5	mg/L	<0.02	<b>0.33</b>	<b>0.063</b>	<b>0.072</b>	<b>0.56</b>	<b>0.031</b>	<b>0.2</b>
Carbon tetrachloride	0.5	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	100	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	6	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Tetrachloroethene	0.7	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trichloroethene	0.5	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Vinyl chloride	0.2	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
<b>Other Parameters</b>									
Percent moisture	NAV	%	<b>56</b>	<b>48</b>	<b>66</b>	<b>64</b>	<b>61</b>	<b>62</b>	<b>19</b>
Percent solids	NAV	%	<b>44</b>	<b>52</b>	<b>34</b>	<b>36</b>	<b>39</b>	<b>38</b>	<b>81</b>

<sup>1</sup> - Regulatory Limits for nonhazardous waste obtained from 40 CFR Part 261.

Shading indicates that a detection exceeds the Federal (RCRA-TCLP) Hazardous Waste Criteria Standard.

**Bold** - Above detection limit.

CFR - Code of Federal Regulations.

mg/L - Milligram per liter.

NAV - Not available.

RCRA - Resource Conservation and Recovery Act.

TCLP - Toxicity Characteristic Leaching Procedure.



Table 2. Summary of Quality Assurance/Quality Control (QA/QC) Results,  
Roll-Off Box Samples, Hercules Incorporated, Hattiesburg Mississippi.

Location ID:	Date Collected:	TB-1130	
		Units	11/30/12
<b>Volatile Organic Compounds Method 8260B</b>			
1,1-Dichloroethene	mg/L	<0.001	
1,2-Dichloroethane	mg/L	<0.001	
2-Butanone	mg/L	<0.01	
Benzene	mg/L	<0.001	
Carbon tetrachloride	mg/L	<0.001	
Chlorobenzene	mg/L	<0.001	
Chloroform	mg/L	<0.001	
Tetrachloroethene	mg/L	<0.001	
Trichloroethene	mg/L	<0.001	
Vinyl chloride	mg/L	<0.001	

mg/L - Milligram per liter.

TB - Trip Blank.

Table 3. Summary of Underlying Hazardous Constituents Results, Roll-Off Box Samples,  
Hercules Incorporated, Hattiesburg Mississippi.

Location ID:	Universal Treatment Standard (Nonwastewater)	Units	RB-1046-0109
Date Collected:			01/09/13
<b>Volatile Organic Compounds Method 8260B</b>			
1,1,1,2-Tetrachloroethane	6.0	mg/kg	<87
1,1,1-Trichloroethane	6.0	mg/kg	<87
1,1,2,2-Tetrachloroethane	6.0	mg/kg	<87
1,1,2-Trichloroethane	6.0	mg/kg	<87
1,1-Dichloroethane	6.0	mg/kg	<87
1,1-Dichloroethene	6.0	mg/kg	<87
1,2,3-Trichloropropane	30	mg/kg	<87
1,2-Dibromo-3-Chloropropane	15	mg/kg	<170
1,2-Dichloroethane	6.0	mg/kg	<87
1,2-Dichloropropane	18	mg/kg	<87
2-Butanone (MEK)	36	mg/kg	<440
2-Chloro-1,3-butadiene	0.28	mg/kg	<87
2-Hexanone	NAV	mg/kg	<440
3-Chloro-1-propene	30	mg/kg	<87
4-Methyl-2-pentanone (MIBK)	33	mg/kg	<440
Acetone	160	mg/kg	<870
Acetonitrile	38	mg/kg	<3500
Acrolein	NA	mg/kg	<1700
Acrylonitrile	84	mg/kg	<1700
Benzene	10	mg/kg	<87
Bromoform	15	mg/kg	<87
Bromomethane	15	mg/kg	<87
Carbon disulfide <sup>1</sup>	4.8	mg/kg	<87
Carbon tetrachloride	6.0	mg/kg	<87
Chlorobenzene	6.0	mg/kg	<87
Chlorodibromomethane	15	mg/kg	<87
Chloroethane	6.0	mg/kg	<87
Chloroform	6.0	mg/kg	<87
Chloromethane	30	mg/kg	<87
cis-1,3-Dichloropropene	18	mg/kg	<87
Dibromomethane	15	mg/kg	<87
Dichlorobromomethane	15	mg/kg	<87
Dichlorodifluoromethane	7.2	mg/kg	<87
Ethylbenzene	10	mg/kg	<87
Ethylene Dibromide	15	mg/kg	<87
Ethyl methacrylate	160	mg/kg	<87
Iodomethane	65	mg/kg	<87
Isobutyl alcohol	170	mg/kg	<3500
Methacrylonitrile	84	mg/kg	<1700
Methylene Chloride	30	mg/kg	<87
Methyl methacrylate	160	mg/kg	<170
Pentachloroethane	6.0	mg/kg	<440
Propionitrile	360	mg/kg	<1700
Styrene	NAV	mg/kg	<87
Tetrachloroethene	6.0	mg/kg	<87
Toluene	10	mg/kg	<b>1800</b>
trans-1,2-Dichloroethene	30	mg/kg	<87
trans-1,3-Dichloropropene	18	mg/kg	<87
trans-1,4-Dichloro-2-butene	NAV	mg/kg	<170
Trichloroethene	6.0	mg/kg	<87
Trichlorofluoromethane	30	mg/kg	<87
Vinyl acetate	NAV	mg/kg	<170
Vinyl chloride	6.0	mg/kg	<87
Xylenes, Total	30	mg/kg	<170

Table 3. Summary of Underlying Hazardous Constituents Results, Roll-Off Box Samples,  
Hercules Incorporated, Hattiesburg Mississippi.

Location ID: Date Collected:	Universal Treatment Standard (Nonwastewater)	Units	RB-1046-0109
			01/09/13
<b>Semivolatile Organic Compounds Method 8270C LL</b>			
1,1'-Biphenyl	NAV	mg/kg	340
1,2,4,5-Tetrachlorobenzene	14	mg/kg	<44
1,2,4-Trichlorobenzene	19	mg/kg	<44
1,2-Dichlorobenzene	6.0	mg/kg	<44
1,3,5-Trinitrobenzene	NAV	mg/kg	<88
1,3-Dichlorobenzene	6.0	mg/kg	<44
1,3-Dinitrobenzene	NAV	mg/kg	<44
1,4-Dichlorobenzene	6.0	mg/kg	<44
1,4-Dioxane	170	mg/kg	<44
1,4-Naphthoquinone	NAV	mg/kg	<44
1-Naphthylamine	NAV	mg/kg	<88
2,3,4,6-Tetrachlorophenol	7.4	mg/kg	<44
2,4,5-Trichlorophenol	7.4	mg/kg	<44
2,4,6-Trichlorophenol	7.4	mg/kg	<44
2,4-Dichlorophenol	14	mg/kg	<44
2,4-Dimethylphenol	14	mg/kg	<88
2,4-Dinitrophenol	160	mg/kg	<440
2,4-Dinitrotoluene	140	mg/kg	<44
2,6-Dichlorophenol	14	mg/kg	<44
2,6-Dinitrotoluene	28	mg/kg	<44
2-Acetylaminofluorene	140	mg/kg	<44
2-Chloronaphthalene	5.6	mg/kg	<44
2-Chlorophenol	5.7	mg/kg	<44
2-Methylnaphthalene	NAV	mg/kg	<9
2-Methylphenol	5.6	mg/kg	<44
2-Naphthylamine	NA	mg/kg	<88
2-Nitroaniline	14	mg/kg	<230
2-Nitrophenol	13	mg/kg	<44
2-Picoline	NAV	mg/kg	<88
2-Toluidine	NAV	mg/kg	<44
3 & 4 Methylphenol	NAV	mg/kg	<44
3,3'-Dichlorobenzidine	NAV	mg/kg	<88
3,3'-Dimethylbenzidine	NAV	mg/kg	<88
3-Methylcholanthrene	15	mg/kg	<44
3-Nitroaniline	NAV	mg/kg	<230
4,6-Dinitro-2-methylphenol	160	mg/kg	<230
4-Aminobiphenyl	NA	mg/kg	<88
4-Bromophenyl phenyl ether	15	mg/kg	<44
4-Chloro-3-methylphenol	14	mg/kg	<44
4-Chloroaniline	16	mg/kg	<88
4-Chlorophenyl phenyl ether	NAV	mg/kg	<44
4-Nitroaniline	28	mg/kg	<230
4-Nitrophenol	29	mg/kg	<230
4-Nitroquinoline-1-oxide	NAV	mg/kg	<440
7,12-Dimethylbenz(a)anthracene	NAV	mg/kg	<44
Acenaphthene	3.4	mg/kg	<9
Acenaphthylene	3.4	mg/kg	<9
Acetophenone	9.7	mg/kg	<44
alpha,alpha-Dimethyl phenethylamine	NAV	mg/kg	<9000
Aniline	14	mg/kg	<88
Anthracene	3.4	mg/kg	<9
Aramite, Total	NA	mg/kg	<88
Benzo[a]anthracene	3.4	mg/kg	<9
Benzo[a]pyrene	3.4	mg/kg	<9
Benzo[b]fluoranthene	6.8	mg/kg	<9

Table 3. Summary of Underlying Hazardous Constituents Results, Roll-Off Box Samples,  
Hercules Incorporated, Hattiesburg Mississippi.

Location ID: Date Collected:	Universal Treatment Standard (Nonwastewater)	Units	RB-1046-0109
			01/09/13
<b>Semivolatile Organic Compounds Method 8270C LL (continued)</b>			
Benzo[g,h,i]perylene	1.8	mg/kg	<9
Benzo[k]fluoranthene	6.8	mg/kg	<9
Benzyl alcohol	NAV	mg/kg	<44
Bis (2-chloroisopropyl) ether	7.2	mg/kg	<44
Bis(2-chloroethoxy)methane	7.2	mg/kg	<44
Bis(2-chloroethyl)ether	6.0	mg/kg	<44
Bis(2-ethylhexyl) phthalate	28	mg/kg	<88
Butyl benzyl phthalate	28	mg/kg	<44
Chrysene	3.4	mg/kg	<9
Diallate	NAV	mg/kg	<44
Dibenz(a,h)anthracene	8.2	mg/kg	<9
Dibenzofuran	NAV	mg/kg	<44
Diethyl phthalate	28	mg/kg	<44
Dimethoate	NAV	mg/kg	<44
Dimethyl phthalate	28	mg/kg	<44
Di-n-butyl phthalate	28	mg/kg	<230
Di-n-octyl phthalate	28	mg/kg	<44
Dinoseb	2.5	mg/kg	<88
Diphenyl oxide	NAV	mg/kg	890B
Disulfoton	6.2	mg/kg	<44
Ethyl methanesulfonate	NAV	mg/kg	<88
Ethyl Parathion	4.6	mg/kg	<44
Famphur	15	mg/kg	<44
Fluoranthene	3.4	mg/kg	<9
Fluorene	3.4	mg/kg	<9
Hexachlorobenzene	10	mg/kg	<44
Hexachlorobutadiene	5.6	mg/kg	<44
Hexachlorocyclopentadiene	2.4	mg/kg	<88
Hexachloroethane	30	mg/kg	<44
Hexachlorophene	NAV	mg/kg	<23000 <sup>2</sup>
Hexachloropropene	30	mg/kg	<44
Indeno[1,2,3-cd]pyrene	3.4	mg/kg	<9
Isophorone	NAV	mg/kg	<44
Iisosafrole	2.6	mg/kg	<44
Methapyrilene	1.5	mg/kg	<9000
Methyl methanesulfonate	NA	mg/kg	<44
Methyl parathion	4.6	mg/kg	<44
Naphthalene	5.6	mg/kg	<9
Nitrobenzene	14	mg/kg	<44
N-Nitro-o-toluidine	28	mg/kg	<44
N-Nitrosodiethylamine	28	mg/kg	<88
N-Nitrosodimethylamine	2.3	mg/kg	<44
N-Nitrosodi-n-butylamine	17	mg/kg	<44
N-Nitrosodi-n-propylamine	14	mg/kg	<44
N-Nitrosodiphenylamine	13	mg/kg	<44
N-Nitrosomethylmethyamine	2.3	mg/kg	<44
N-Nitrosomorpholine	2.3	mg/kg	<44
N-Nitrosopiperidine	35	mg/kg	<44
N-Nitrosopyrrolidine	35	mg/kg	<44
o,o',o"-Triethylphosphorothioate	NAV	mg/kg	<88
p-Dimethylamino azobenzene	NA	mg/kg	<44
Pentachlorobenzene	10	mg/kg	<44
Pentachloronitrobenzene	4.8	mg/kg	<44
Pentachlorophenol	7.4	mg/kg	<230
Phenacetin	16	mg/kg	<44

Table 3. Summary of Underlying Hazardous Constituents Results, Roll-Off Box Samples,  
Hercules Incorporated, Hattiesburg Mississippi.

Location ID:	Universal Treatment Standard (Nonwastewater)	Units	RB-1046-0109
Date Collected:			01/09/13
<b>Semivolatile Organic Compounds Method 8270C LL (continued)</b>			
Phenanthrene	5.6	mg/kg	<9
Phenol	6.2	mg/kg	<44
Phorate	4.6	mg/kg	<44
p-Phenylenediamine	NAV	mg/kg	<1100 <sup>2</sup>
Pronamide	1.5	mg/kg	<44
Pyrene	8.2	mg/kg	<b>10</b>
Pyridine	16	mg/kg	<44
Safrole, Total	22	mg/kg	<44
Sulfotep	NAV	mg/kg	<44
Thionazin	NAV	mg/kg	<44
<b>Dioxins/Furans Method 8290</b>			
1,2,3,4,6,7,8-HxCDD	0.0025	mg/kg	<b>0.003B</b>
1,2,3,4,6,7,8-HxCDF	0.0025	mg/kg	<b>0.00028B</b>
1,2,3,4,7,8,9-HxCDF	0.0025	mg/kg	<b>0.00002B J</b>
1,2,3,4,7,8-HxCDD	0.001	mg/kg	<b>0.000011J</b>
1,2,3,4,7,8-HxCDF	0.001	mg/kg	<b>0.000022Q J</b>
1,2,3,6,7,8-HxCDD	0.001	mg/kg	<b>0.00014</b>
1,2,3,6,7,8-HxCDF	0.001	mg/kg	<b>0.000011J</b>
1,2,3,7,8,9-HxCDD	0.001	mg/kg	<b>0.000073</b>
1,2,3,7,8,9-HxCDF	0.001	mg/kg	<b>0.0000019Q J</b>
1,2,3,7,8-PeCDD	0.001	mg/kg	<b>0.0000099Q B J</b>
1,2,3,7,8-PeCDF	0.001	mg/kg	<b>0.0000067J</b>
2,3,4,6,7,8-HxCDF	0.001	mg/kg	<b>0.000008B J</b>
2,3,4,7,8-PeCDF	0.001	mg/kg	<b>0.000028J</b>
2,3,7,8-TCDD	0.001	mg/kg	<0.0000099
2,3,7,8-TCDF	0.001	mg/kg	<b>0.000018B</b>
OCDD	0.005	mg/kg	<b>0.033B</b>
OCDF	0.005	mg/kg	<b>0.0011B</b>
<b>Organochlorine Pesticides and PCBs Method 8081A_8082</b>			
4,4'-DDD	0.087	mg/kg	<0.023
4,4'-DDE	0.087	mg/kg	<0.023
4,4'-DDT	0.087	mg/kg	<0.023
Aldrin	0.066	mg/kg	<0.023
alpha-BHC	0.066	mg/kg	<0.023
beta-BHC	0.066	mg/kg	<0.023
Chlordane (technical)	0.26	mg/kg	<0.23
Chlorobenzilate	NA	mg/kg	<0.23
delta-BHC	0.066	mg/kg	<0.023
Dieldrin	0.13	mg/kg	<0.023
Endosulfan I	0.066	mg/kg	<0.023
Endosulfan II	0.13	mg/kg	<0.023
Endosulfan sulfate	0.13	mg/kg	<0.023
Endrin	0.13	mg/kg	<0.023
Endrin aldehyde	0.13	mg/kg	<0.023
gamma-BHC (Lindane)	0.066	mg/kg	<0.023
Heptachlor	0.066	mg/kg	<0.023
Heptachlor epoxide	0.066	mg/kg	<0.023
Isodrin	0.066	mg/kg	<0.044
Kepone	0.13	mg/kg	<2.3
Methoxychlor	0.18	mg/kg	<0.023
PCB-1016	<sup>3</sup>	mg/kg	<0.44
PCB-1221	<sup>3</sup>	mg/kg	<0.89
PCB-1232	<sup>3</sup>	mg/kg	<0.44
PCB-1242	<sup>3</sup>	mg/kg	<0.44
PCB-1248	<sup>3</sup>	mg/kg	<b>22</b>

Table 3. Summary of Underlying Hazardous Constituents Results, Roll-Off Box Samples,  
Hercules Incorporated, Hattiesburg Mississippi.

Location ID:	Universal Treatment Standard (Nonwastewater)	Units	RB-1046-0109
Date Collected:			01/09/13
<b>Organochlorine Pesticides and PCBs Method 8081A_8082 (continued)</b>			
PCB-1254	3	mg/kg	<0.44
PCB-1260	3	mg/kg	<0.44
Polychlorinated biphenyls, Total	10	mg/kg	<b>13</b>
Toxaphene	2.6	mg/kg	<2.3
<b>Herbicides Method 8151A</b>			
2,4,5-T	7.9	mg/kg	<0.11
2,4-D	10	mg/kg	<0.11
Silvex (2,4,5-TP)	7.9	mg/kg	<0.11
<b>Metals Method 6020/7471A</b>			
Antimony <sup>1</sup>	1.15	mg/kg	<1.3
Arsenic <sup>1</sup>	5.0	mg/kg	<b>4.5</b>
Barium <sup>1</sup>	1.2	mg/kg	<b>53</b>
Beryllium <sup>1</sup>	0.82	mg/kg	<b>0.16</b>
Cadmium <sup>1</sup>	0.69	mg/kg	<b>0.68</b>
Chromium <sup>1</sup>	2.77	mg/kg	<b>40</b>
Cobalt <sup>1</sup>	NAV	mg/kg	<b>240</b>
Copper <sup>1</sup>	NAV	mg/kg	<b>61</b>
Lead <sup>1</sup>	0.75	mg/kg	<b>60</b>
Mercury (7471A) <sup>1</sup>	0.025	mg/kg	<b>0.57</b>
Nickel <sup>1</sup>	11	mg/kg	<b>97</b>
Selenium <sup>1</sup>	5.7	mg/kg	<0.64
Silver <sup>1</sup>	0.14	mg/kg	<b>0.09J</b>
Thallium <sup>1</sup>	0.20	mg/kg	<b>0.044J</b>
Vanadium <sup>1</sup>	1.6	mg/kg	<b>15</b>
Zinc <sup>1</sup>	4.3	mg/kg	<b>340</b>
<b>General Chemistry</b>			
Cyanide, Amenable (9012A)	30	mg/kg	<0.5
Cyanide, Total (9012A)	590	mg/kg	<b>11</b>
Sulfide (9034)	NAV	mg/kg	<80
Percent Moisture	NAV	%	<b>25</b>
<b>General Chemistry - Soluble</b>			
Fluoride (9056)	NAV	mg/kg	<27

<sup>1</sup> - Universal Treatment Standard is a TCLP standard and is report in mg/L. Detectons are not shaded based on comparison to this standard.

<sup>2</sup> - LCS or LCSD exceeds the control limits.

<sup>3</sup> - Evaluated based on total PCBs.

Shading indicates that a detection exceeds the Universale Treatment Standard.

B - Compound was found in the blank and sample.

**Bold** - Above detection limit.

J - Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Limit (MDL) and the concentration is an approximate value.

mg/kg - Milligram per kilogram.

mg/l - Milligram per liter.

NAV - Not available.

% - Percent.

PCBs - Polychlorinated Biphenyls.

pg/g - Picogram per gram.

Q - Estimated maximum possible concentration (EMPC).

TCLP - Toxicity Characteristic Leaching Procedure.

**Attachment A**

Laboratory Reports

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Savannah

5102 LaRoche Avenue  
Savannah, GA 31404

Tel: (912)354-7858

TestAmerica Job ID: 680-85305-1

Client Project/Site: Hattiesburg Sludge RB 11/30/12

For:

Ashland Inc.  
Ashland Hercules Research Center  
500 Hercules Rd Bldg 8139  
Wilmington, Delaware 19808

Attn: Timothy Hassett



Authorized for release by:

12/10/2012 3:10:39 PM

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### LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

## Case Narrative

Client: Ashland Inc.  
Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

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**Job ID: 680-85305-1**

**Laboratory: TestAmerica Savannah**

Narrative

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### CASE NARRATIVE

**Client: Ashland Inc.**

**Project: Hattiesburg Sludge RB 11/30/12**

**Report Number: 680-85305-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### **RECEIPT**

The samples were received on 12/01/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.8 C.

#### **TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)**

Samples RB-1027-1130 (680-85305-1) and RB-1042-1130 (680-85305-2) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 12/04/2012 and analyzed on 12/07/2012.

Samples RB-1027-1130 (680-85305-1)[20X] and RB-1042-1130 (680-85305-2)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the volatiles analyses.

All quality control parameters were within the acceptance limits.

#### **PERCENT SOLIDS/MOISTURE**

Samples RB-1027-1130 (680-85305-1) and RB-1042-1130 (680-85305-2) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 12/07/2012.

No difficulties were encountered during the % solids/moisture analyses.

All quality control parameters were within the acceptance limits.

## Sample Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-85305-1	RB-1027-1130	Solid	11/30/12 13:37	12/01/12 08:21
680-85305-2	RB-1042-1130	Solid	11/30/12 13:42	12/01/12 08:21
680-85305-3	TB-1130	Water	11/30/12 00:00	12/01/12 08:21

TestAmerica Savannah

## Method Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

**Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

## Definitions/Glossary

Client: Ashland Inc.  
Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
✓	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

**Client Sample ID: RB-1027-1130**

**Lab Sample ID: 680-85305-1**

Matrix: Solid

Date Collected: 11/30/12 13:37

Date Received: 12/01/12 08:21

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>0.047</b>		0.020	0.020	mg/L			12/07/12 15:22	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
2-Butanone (MEK)	0.20	U	0.20	0.20	mg/L			12/07/12 15:22	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/07/12 15:22	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	105		70 - 130					12/07/12 15:22	20
Dibromofluoromethane	99		70 - 130					12/07/12 15:22	20
Toluene-d8 (Surr)	96		70 - 130					12/07/12 15:22	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Moisture</b>	<b>55</b>		0.010	0.010	%			12/07/12 10:25	1
<b>Percent Solids</b>	<b>45</b>		0.010	0.010	%			12/07/12 10:25	1

**Client Sample ID: RB-1042-1130**

**Lab Sample ID: 680-85305-2**

Matrix: Solid

Date Collected: 11/30/12 13:42

Date Received: 12/01/12 08:21

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>0.068</b>		0.020	0.020	mg/L			12/07/12 15:00	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
2-Butanone (MEK)	0.20	U	0.20	0.20	mg/L			12/07/12 15:00	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/07/12 15:00	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	100		70 - 130					12/07/12 15:00	20
Dibromofluoromethane	85		70 - 130					12/07/12 15:00	20
Toluene-d8 (Surr)	92		70 - 130					12/07/12 15:00	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Moisture</b>	<b>59</b>		0.010	0.010	%			12/07/12 10:25	1
<b>Percent Solids</b>	<b>41</b>		0.010	0.010	%			12/07/12 10:25	1

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

**Client Sample ID: TB-1130**

**Lab Sample ID: 680-85305-3**

**Matrix: Water**

Date Collected: 11/30/12 00:00

Date Received: 12/01/12 08:21

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0	0.25	ug/L			12/10/12 11:23	1
2-Butanone	10	U	10	1.0	ug/L			12/10/12 11:23	1
Carbon tetrachloride	1.0	U	1.0	0.50	ug/L			12/10/12 11:23	1
Chlorobenzene	1.0	U	1.0	0.25	ug/L			12/10/12 11:23	1
Chloroform	1.0	U	1.0	0.14	ug/L			12/10/12 11:23	1
1,2-Dichloroethane	1.0	U	1.0	0.10	ug/L			12/10/12 11:23	1
1,1-Dichloroethene	1.0	U	1.0	0.11	ug/L			12/10/12 11:23	1
Tetrachloroethylene	1.0	U	1.0	0.15	ug/L			12/10/12 11:23	1
Trichloroethylene	1.0	U	1.0	0.13	ug/L			12/10/12 11:23	1
Vinyl chloride	1.0	U	1.0	0.18	ug/L			12/10/12 11:23	1

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 680-259001/5**

**Matrix: Solid**

**Analysis Batch: 259001**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
Benzene	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
Chloroform	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
2-Butanone (MEK)	0.010	U	0.010	0.010	mg/L	0.010	mg/L		12/07/12 14:17		1
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L	0.0010	mg/L		12/07/12 14:17		1
<hr/>											
Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
	Result	Qualifier									
4-Bromofluorobenzene	97		70 - 130						12/07/12 14:17		1
Dibromofluoromethane	97		70 - 130						12/07/12 14:17		1
Toluene-d8 (Surr)	90		70 - 130						12/07/12 14:17		1

**Lab Sample ID: LCS 680-259001/3**

**Matrix: Solid**

**Analysis Batch: 259001**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spikes	LCS	LCS	Added	Result	Qualifier	Unit	D	%Rec	Limits	%Rec.
	Added	Result	Qualifier								
Benzene	0.0500	0.0447		0.0500	0.0447		mg/L		89	70 - 130	
Carbon tetrachloride	0.0500	0.0545		0.0500	0.0545		mg/L		109	70 - 130	
Chlorobenzene	0.0500	0.0510		0.0500	0.0510		mg/L		102	70 - 130	
Chloroform	0.0500	0.0462		0.0500	0.0462		mg/L		92	70 - 130	
2-Butanone (MEK)	0.100	0.0651		0.100	0.0651		mg/L		65	49 - 172	
1,2-Dichloroethane	0.0500	0.0442		0.0500	0.0442		mg/L		88	70 - 130	
1,1-Dichloroethene	0.0500	0.0530		0.0500	0.0530		mg/L		106	66 - 131	
Tetrachloroethene	0.0500	0.0509		0.0500	0.0509		mg/L		102	70 - 130	
Trichloroethene	0.0500	0.0461		0.0500	0.0461		mg/L		92	70 - 130	
Vinyl chloride	0.0500	0.0458		0.0500	0.0458		mg/L		92	67 - 134	
<hr/>											
Surrogate	LCS	LCS	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
	Result	Qualifier									
4-Bromofluorobenzene	105		70 - 130								
Dibromofluoromethane	101		70 - 130								
Toluene-d8 (Surr)	99		70 - 130								

**Lab Sample ID: LCSD 680-259001/4**

**Matrix: Solid**

**Analysis Batch: 259001**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike	LCSD	LCSD	Added	Result	Qualifier	Unit	D	%Rec	Limits	%Rec.	RPD
	Added	Result	Qualifier									
Benzene	0.0500	0.0432		0.0500	0.0432		mg/L		86	70 - 130	3	30
Carbon tetrachloride	0.0500	0.0522		0.0500	0.0522		mg/L		104	70 - 130	4	30
Chlorobenzene	0.0500	0.0505		0.0500	0.0505		mg/L		101	70 - 130	1	30
Chloroform	0.0500	0.0438		0.0500	0.0438		mg/L		88	70 - 130	5	30
2-Butanone (MEK)	0.100	0.0672		0.100	0.0672		mg/L		67	49 - 172	3	30

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 680-259001/4**

**Matrix: Solid**

**Analysis Batch: 259001**

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier						
1,2-Dichloroethane	0.0500	0.0435		mg/L		87	70 - 130	1	30
1,1-Dichloroethene	0.0500	0.0492		mg/L		98	66 - 131	7	30
Tetrachloroethene	0.0500	0.0514		mg/L		103	70 - 130	1	30
Trichloroethene	0.0500	0.0446		mg/L		89	70 - 130	3	30
Vinyl chloride	0.0500	0.0427		mg/L		85	67 - 134	7	30

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	104		70 - 130
Dibromofluoromethane	93		70 - 130
Toluene-d8 (Surr)	97		70 - 130

**Lab Sample ID: MB 680-259201/7**

**Matrix: Water**

**Analysis Batch: 259201**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	1.0	U	1.0	0.25	ug/L			12/10/12 11:02	1
Carbon tetrachloride	1.0	U	1.0	0.50	ug/L			12/10/12 11:02	1
Chlorobenzene	1.0	U	1.0	0.25	ug/L			12/10/12 11:02	1
Chloroform	1.0	U	1.0	0.14	ug/L			12/10/12 11:02	1
2-Butanone	10	U	10	1.0	ug/L			12/10/12 11:02	1
1,2-Dichloroethane	1.0	U	1.0	0.10	ug/L			12/10/12 11:02	1
1,1-Dichloroethene	1.0	U	1.0	0.11	ug/L			12/10/12 11:02	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/10/12 11:02	1
Trichloroethene	1.0	U	1.0	0.13	ug/L			12/10/12 11:02	1
Vinyl chloride	1.0	U	1.0	0.18	ug/L			12/10/12 11:02	1

**Lab Sample ID: LCS 680-259201/4**

**Matrix: Water**

**Analysis Batch: 259201**

Analyte	Spike	LCs	LCs	Unit	D	%Rec	Limits		
	Added	Result	Qualifier						
Benzene	50.0	49.2		ug/L		98	70 - 130		
Carbon tetrachloride	50.0	49.5		ug/L		99	70 - 130		
Chlorobenzene	50.0	50.6		ug/L		101	70 - 130		
Chloroform	50.0	48.1		ug/L		96	70 - 130		
2-Butanone	100	101		ug/L		101	49 - 172		
1,2-Dichloroethane	50.0	46.7		ug/L		93	70 - 130		
1,1-Dichloroethene	50.0	50.4		ug/L		101	66 - 131		
Tetrachloroethene	50.0	50.8		ug/L		102	70 - 130		
Trichloroethene	50.0	48.7		ug/L		97	70 - 130		
Vinyl chloride	50.0	39.7		ug/L		79	67 - 134		

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 680-259201/5**

**Matrix: Water**

**Analysis Batch: 259201**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	48.7		ug/L		97	70 - 130	1	30
Carbon tetrachloride	50.0	49.4		ug/L		99	70 - 130	0	30
Chlorobenzene	50.0	50.3		ug/L		101	70 - 130	0	30
Chloroform	50.0	48.5		ug/L		97	70 - 130	1	30
2-Butanone	100	106		ug/L		106	49 - 172	5	30
1,2-Dichloroethane	50.0	47.8		ug/L		96	70 - 130	2	30
1,1-Dichloroethene	50.0	49.0		ug/L		98	66 - 131	3	30
Tetrachloroethene	50.0	51.0		ug/L		102	70 - 130	0	30
Trichloroethene	50.0	48.1		ug/L		96	70 - 130	1	30
Vinyl chloride	50.0	39.4		ug/L		79	67 - 134	1	30

**Lab Sample ID: LB 680-258565/9-A LB**

**Matrix: Solid**

**Analysis Batch: 259001**

**Client Sample ID: Method Blank**

**Prep Type: TCLP**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
2-Butanone (MEK)	0.20	U	0.20	0.20	mg/L			12/07/12 14:39	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/07/12 14:39	20

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		70 - 130		12/07/12 14:39	20
Dibromofluoromethane	91		70 - 130		12/07/12 14:39	20
Toluene-d8 (Surrogate)	89		70 - 130		12/07/12 14:39	20

TestAmerica Savannah

## QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

### GC/MS VOA

#### Leach Batch: 258565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85305-1	RB-1027-1130	TCLP	Solid	1311	
680-85305-2	RB-1042-1130	TCLP	Solid	1311	
LB 680-258565/9-A LB	Method Blank	TCLP	Solid	1311	

#### Analysis Batch: 259001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85305-1	RB-1027-1130	TCLP	Solid	8260B	258565
680-85305-2	RB-1042-1130	TCLP	Solid	8260B	258565
LB 680-258565/9-A LB	Method Blank	TCLP	Solid	8260B	258565
LCS 680-259001/3	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-259001/4	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-259001/5	Method Blank	Total/NA	Solid	8260B	

#### Analysis Batch: 259201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85305-3	TB-1130	Total/NA	Water	8260B	
LCS 680-259201/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-259201/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-259201/7	Method Blank	Total/NA	Water	8260B	

### General Chemistry

#### Analysis Batch: 258954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85305-1	RB-1027-1130	Total/NA	Solid	Moisture	
680-85305-2	RB-1042-1130	Total/NA	Solid	Moisture	

TestAmerica Savannah

# Lab Chronicle

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

**Client Sample ID: RB-1027-1130**

**Lab Sample ID: 680-85305-1**

Date Collected: 11/30/12 13:37

Matrix: Solid

Date Received: 12/01/12 08:21

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			258565	12/04/12 16:04	KW	TAL SAV
TCLP	Analysis	8260B		20	259001	12/07/12 15:22	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	258954	12/07/12 10:25	ETB	TAL SAV

**Client Sample ID: RB-1042-1130**

**Lab Sample ID: 680-85305-2**

Date Collected: 11/30/12 13:42

Matrix: Solid

Date Received: 12/01/12 08:21

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			258565	12/04/12 16:04	KW	TAL SAV
TCLP	Analysis	8260B		20	259001	12/07/12 15:00	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	258954	12/07/12 10:25	ETB	TAL SAV

**Client Sample ID: TB-1130**

**Lab Sample ID: 680-85305-3**

Date Collected: 11/30/12 00:00

Matrix: Water

Date Received: 12/01/12 08:21

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	259201	12/10/12 11:23	AJMC	TAL SAV

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

Serial Number 60124

**ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## Login Sample Receipt Checklist

Client: Ashland Inc.

Job Number: 680-85305-1

**Login Number: 85305**

**List Source: TestAmerica Savannah**

**List Number: 1**

**Creator: Conner, Keaton**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Certification Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 11/30/12

TestAmerica Job ID: 680-85305-1

### Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

TestAmerica Savannah

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Savannah

5102 LaRoche Avenue

Savannah, GA 31404

Tel: (912)354-7858

TestAmerica Job ID: 680-85525-1

Client Project/Site: Hattiesburg Sludge RB - 12/5/12

For:

Ashland Inc.

Ashland Hercules Research Center

500 Hercules Rd Bldg 8139

Wilmington, Delaware 19808

Attn: Timothy Hassett

Lidya Gulizia

Authorized for release by:

12/14/2012 12:58:53 PM

Lidya Gulizia

Project Manager II

[lida.gulizia@testamericainc.com](mailto:lida.gulizia@testamericainc.com)

### LINKS

Review your project

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[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

## Case Narrative

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

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**Job ID: 680-85525-1**

**Laboratory: TestAmerica Savannah**

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Narrative

### CASE NARRATIVE

**Client: Ashland Inc.**

**Project: Hattiesburg Sludge RB - 12/5/12**

**Report Number: 680-85525-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### RECEIPT

The samples were received on 12/07/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.2 C.

#### TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples RB-1003-1205 (680-85525-1), RB-1019-1205 (680-85525-2) and RB-1047-1205 (680-85525-3) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 12/11/2012 and analyzed on 12/13/2012.

Samples RB-1003-1205 (680-85525-1)[20X], RB-1019-1205 (680-85525-2)[20X] and RB-1047-1205 (680-85525-3)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the volatiles analyses.

All quality control parameters were within the acceptance limits.

#### PERCENT SOLIDS/MOISTURE

Samples RB-1003-1205 (680-85525-1), RB-1019-1205 (680-85525-2) and RB-1047-1205 (680-85525-3) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 12/08/2012.

No difficulties were encountered during the % solids/moisture analyses.

All quality control parameters were within the acceptance limits.

## Sample Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-85525-1	RB-1003-1205	Solid	12/05/12 14:05	12/07/12 09:24
680-85525-2	RB-1019-1205	Solid	12/05/12 14:15	12/07/12 09:24
680-85525-3	RB-1047-1205	Solid	12/05/12 14:25	12/07/12 09:24

## Method Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

**Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

## Definitions/Glossary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
⊗	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

**Client Sample ID: RB-1003-1205**

**Lab Sample ID: 680-85525-1**

Matrix: Solid

Date Collected: 12/05/12 14:05

Date Received: 12/07/12 09:24

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.056		0.020	0.020	mg/L			12/13/12 18:49	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
2-Butanone (MEK)	0.20	U	0.20	0.20	mg/L			12/13/12 18:49	20
Tetrachloroethylene	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
Trichloroethylene	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/13/12 18:49	20
<b>Surrogate</b>		%Recovery	Qualifier	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene		91		70 - 130				12/13/12 18:49	20
Dibromofluoromethane		95		70 - 130				12/13/12 18:49	20
Toluene-d8 (Surr)		96		70 - 130				12/13/12 18:49	20

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	59		0.010	0.010	%			12/08/12 10:17	1
Percent Solids	41		0.010	0.010	%			12/08/12 10:17	1

**Client Sample ID: RB-1019-1205**

**Lab Sample ID: 680-85525-2**

Matrix: Solid

Date Collected: 12/05/12 14:15

Date Received: 12/07/12 09:24

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.082		0.020	0.020	mg/L			12/13/12 19:10	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
2-Butanone (MEK)	0.20	U	0.20	0.20	mg/L			12/13/12 19:10	20
Tetrachloroethylene	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
Trichloroethylene	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/13/12 19:10	20
<b>Surrogate</b>		%Recovery	Qualifier	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene		90		70 - 130				12/13/12 19:10	20
Dibromofluoromethane		95		70 - 130				12/13/12 19:10	20
Toluene-d8 (Surr)		98		70 - 130				12/13/12 19:10	20

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	65		0.010	0.010	%			12/08/12 10:17	1
Percent Solids	35		0.010	0.010	%			12/08/12 10:17	1

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

**Client Sample ID: RB-1047-1205**

**Lab Sample ID: 680-85525-3**

Date Collected: 12/05/12 14:25

Matrix: Solid

Date Received: 12/07/12 09:24

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>0.080</b>		0.020	0.020	mg/L			12/13/12 18:28	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
2-Butanone (MEK)	0.20	U	0.20	0.20	mg/L			12/13/12 18:28	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/13/12 18:28	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	93		70 - 130					12/13/12 18:28	20
Dibromofluoromethane	95		70 - 130					12/13/12 18:28	20
Toluene-d8 (Sur)	96		70 - 130					12/13/12 18:28	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Percent Moisture</b>	<b>62</b>		0.010	0.010	%			12/08/12 10:17	1
<b>Percent Solids</b>	<b>38</b>		0.010	0.010	%			12/08/12 10:17	1

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 680-259671/7**

**Matrix: Solid**

**Analysis Batch: 259671**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
Chloroform	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
2-Butanone (MEK)	0.010	U	0.010	0.010	mg/L			12/13/12 13:33	1
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L			12/13/12 13:33	1
MB		MB		Limits		Prepared		Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier							
4-Bromofluorobenzene	90		70 - 130					12/13/12 13:33	1
Dibromofluoromethane	103		70 - 130					12/13/12 13:33	1
Toluene-d8 (Surr)	93		70 - 130					12/13/12 13:33	1

**Lab Sample ID: LCS 680-259671/4**

**Matrix: Solid**

**Analysis Batch: 259671**

Analyte	Spike		LCS		Unit	D	%Rec	Limits	%Rec.
	Added	Result	Qualifier	LCS					
Benzene	0.0500	0.0514		0.0514	mg/L		103	70 - 130	
Carbon tetrachloride	0.0500	0.0534		0.0534	mg/L		107	70 - 130	
Chlorobenzene	0.0500	0.0509		0.0509	mg/L		102	70 - 130	
Chloroform	0.0500	0.0505		0.0505	mg/L		101	70 - 130	
1,2-Dichloroethane	0.0500	0.0506		0.0506	mg/L		101	70 - 130	
1,1-Dichloroethene	0.0500	0.0537		0.0537	mg/L		107	66 - 131	
2-Butanone (MEK)	0.100	0.101		0.101	mg/L		101	49 - 172	
Tetrachloroethene	0.0500	0.0507		0.0507	mg/L		101	70 - 130	
Trichloroethene	0.0500	0.0496		0.0496	mg/L		99	70 - 130	
Vinyl chloride	0.0500	0.0434		0.0434	mg/L		87	67 - 134	
Spike		LCS		LCS		Limits		%Rec.	
Surrogate	%Recovery	Qualifier							
4-Bromofluorobenzene	95		70 - 130						
Dibromofluoromethane	99		70 - 130						
Toluene-d8 (Surr)	103		70 - 130						

**Lab Sample ID: LCSD 680-259671/6**

**Matrix: Solid**

**Analysis Batch: 259671**

Analyte	Spike		LCSD		Unit	D	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier	LCSD						
Benzene	0.0500	0.0468		0.0468	mg/L		94	70 - 130	9	30
Carbon tetrachloride	0.0500	0.0469		0.0469	mg/L		94	70 - 130	13	30
Chlorobenzene	0.0500	0.0472		0.0472	mg/L		94	70 - 130	8	30
Chloroform	0.0500	0.0447		0.0447	mg/L		89	70 - 130	12	30
1,2-Dichloroethane	0.0500	0.0458		0.0458	mg/L		92	70 - 130	10	30

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 680-259671/6**

**Matrix: Solid**

**Analysis Batch: 259671**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD		Unit	D	%Rec	Limits	RPD	Limit
		Result	Qualifier						
1,1-Dichloroethene	0.0500	0.0469		mg/L		94	66 - 131	14	30
2-Butanone (MEK)	0.100	0.0926		mg/L		93	49 - 172	8	30
Tetrachloroethene	0.0500	0.0470		mg/L		94	70 - 130	7	30
Trichloroethene	0.0500	0.0451		mg/L		90	70 - 130	9	30
Vinyl chloride	0.0500	0.0392		mg/L		78	67 - 134	10	30

**LCSD**    **LCSD**

<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>
4-Bromofluorobenzene	88		70 - 130
Dibromofluoromethane	89		70 - 130
Toluene-d8 (Surr)	94		70 - 130

**Lab Sample ID: LB 680-259393/6-A LB**

**Matrix: Solid**

**Analysis Batch: 259671**

**Client Sample ID: Method Blank**

**Prep Type: TCLP**

Analyte	Result	Qualifier	<b>LB</b>	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
Carbon tetrachloride	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
Chlorobenzene	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
Chloroform	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
1,2-Dichloroethane	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
1,1-Dichloroethene	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
2-Butanone (MEK)	0.20	U		0.20	0.20	mg/L			12/13/12 18:07	20
Tetrachloroethene	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
Trichloroethene	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20
Vinyl chloride	0.020	U		0.020	0.020	mg/L			12/13/12 18:07	20

**LB**    **LB**

<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>LB</b>	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	90			70 - 130			20
Dibromofluoromethane	96			70 - 130			20
Toluene-d8 (Surr)	95			70 - 130			20

TestAmerica Savannah

# QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

## GC/MS VOA

### Leach Batch: 259393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85525-1	RB-1003-1205	TCLP	Solid	1311	
680-85525-2	RB-1019-1205	TCLP	Solid	1311	
680-85525-3	RB-1047-1205	TCLP	Solid	1311	
LB 680-259393/6-A LB	Method Blank	TCLP	Solid	1311	

### Analysis Batch: 259671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85525-1	RB-1003-1205	TCLP	Solid	8260B	259393
680-85525-2	RB-1019-1205	TCLP	Solid	8260B	259393
680-85525-3	RB-1047-1205	TCLP	Solid	8260B	259393
LB 680-259393/6-A LB	Method Blank	TCLP	Solid	8260B	259393
LCS 680-259671/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-259671/6	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-259671/7	Method Blank	Total/NA	Solid	8260B	

## General Chemistry

### Analysis Batch: 259083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85525-1	RB-1003-1205	Total/NA	Solid	Moisture	
680-85525-2	RB-1019-1205	Total/NA	Solid	Moisture	
680-85525-3	RB-1047-1205	Total/NA	Solid	Moisture	

# Lab Chronicle

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

## Client Sample ID: RB-1003-1205

Lab Sample ID: 680-85525-1

Matrix: Solid

Date Collected: 12/05/12 14:05

Date Received: 12/07/12 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			259393	12/11/12 17:28	KW	TAL SAV
TCLP	Analysis	8260B		20	259671	12/13/12 18:49	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	259083	12/08/12 10:17	FS	TAL SAV

## Client Sample ID: RB-1019-1205

Lab Sample ID: 680-85525-2

Matrix: Solid

Date Collected: 12/05/12 14:15

Date Received: 12/07/12 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			259393	12/11/12 17:28	KW	TAL SAV
TCLP	Analysis	8260B		20	259671	12/13/12 19:10	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	259083	12/08/12 10:17	FS	TAL SAV

## Client Sample ID: RB-1047-1205

Lab Sample ID: 680-85525-3

Matrix: Solid

Date Collected: 12/05/12 14:25

Date Received: 12/07/12 09:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			259393	12/11/12 17:28	KW	TAL SAV
TCLP	Analysis	8260B		20	259671	12/13/12 18:28	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	259083	12/08/12 10:17	FS	TAL SAV

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

Serial Number 60125

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

				<input checked="" type="checkbox"/> TestAmerica Savannah 5102 LaRoche Avenue Savannah, GA 31404		Website: www.testamericainc.com Phone: (912) 354-7858 Fax: (912) 352-0165					
				<input type="checkbox"/> Alternate Laboratory Name/Location		Phone: Fax:					
PROJECT REFERENCE <i>Hercules</i>	PROJECT NO. <i>LA002999.0010</i>	PROJECT LOCATION (STATE) <i>MS</i>	MATRIX TYPE	REQUIRED ANALYSIS				PAGE	OF		
TAL (LAB) PROJECT MANAGER <i>Lydia</i>	P.O. NUMBER	CONTRACT NO.		<input type="checkbox"/> COMPOSITE (C) OR GRAB (G) / INDICATE	<input type="checkbox"/> AQUEOUS (WATER)	<input type="checkbox"/> SOLID OR SEMI-SOLID	<input type="checkbox"/> AIR	<input type="checkbox"/> NONAQUEOUS LIQUID (OIL, SOLVENT, ...)			
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX		<i>vog</i>	<i>TCPP VOC's</i>	<i>40%</i>	<i>Percent So/hds</i>	<i>40%</i>			
CLIENT NAME	CLIENT E-MAIL										
CLIENT ADDRESS											
COMPANY CONTRACTING THIS WORK (if applicable)										NUMBER OF COOLERS SUBMITTED PER SHIPMENT: <i>1</i>	
SAMPLE		SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED					REMARKS	
DATE	TIME				C	A	G	V	O		
12/5	1405	RB-1003-1205			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Caution</i>	
12/5	1415	RB-1019-1205			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Caution</i>	
12/5	1425	RB-1047-1205			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Caution</i>	
12/5	-	TB-1205			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
RELINQUISHED BY: (SIGNATURE) <i>JH Tuh</i>		DATE 12/5	TIME 1700	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
LABORATORY USE ONLY											
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>CHM</i>	DATE 12/07/12	TIME 17:00	CUSTODY INTACT YES <input checked="" type="radio"/> NO <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. 681- 85525	LABORATORY REMARKS <i>2-2 C</i>					

## Login Sample Receipt Checklist

Client: Ashland Inc.

Job Number: 680-85525-1

**Login Number: 85525**

**List Source: TestAmerica Savannah**

**List Number: 1**

**Creator: Barnett, Eddie T**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Certification Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/5/12

TestAmerica Job ID: 680-85525-1

### Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404  
Tel: (912)354-7858

TestAmerica Job ID: 680-85718-1  
Client Project/Site: Hattiesburg Sludge RB - 12/12/12

For:  
Ashland Inc.  
Ashland Hercules Research Center  
500 Hercules Rd Bldg 8139  
Wilmington, Delaware 19808

Attn: Timothy Hassett

Lidya Gulizia

Authorized for release by:  
12/19/2012 4:21:44 PM

Lidya Gulizia  
Project Manager II  
[lidya.gulizia@testamericainc.com](mailto:lidya.gulizia@testamericainc.com)

cc: Craig Derouen                    John Ellis

### LINKS

Review your project  
results through

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Have a Question?



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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Case Narrative

Client: Ashland Inc.  
Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

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**Job ID: 680-85718-1**

**Laboratory: TestAmerica Savannah**

Narrative

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### CASE NARRATIVE

**Client: Ashland Inc.**

**Project: Hattiesburg Sludge RB - 12/12/12**

**Report Number: 680-85718-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### **RECEIPT**

The samples were received on 12/13/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.0 C.

#### **TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)**

Samples RB-1008-1212 (680-85718-1), RB-1045-1212 (680-85718-2) and RB-1023-1212 (680-85718-3) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 12/15/2012 and analyzed on 12/17/2012.

Samples RB-1008-1212 (680-85718-1)[20X], RB-1045-1212 (680-85718-2)[20X] and RB-1023-1212 (680-85718-3)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the volatiles analyses.

All quality control parameters were within the acceptance limits.

#### **PERCENT SOLIDS/MOISTURE**

Samples RB-1008-1212 (680-85718-1), RB-1045-1212 (680-85718-2) and RB-1023-1212 (680-85718-3) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 12/13/2012.

No difficulties were encountered during the % solids/moisture analyses.

All quality control parameters were within the acceptance limits.

## Detection Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

**Client Sample ID: RB-1008-1212**

**Lab Sample ID: 680-85718-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.043		0.020	0.020	mg/L	20		8260B	TCLP

**Client Sample ID: RB-1045-1212**

**Lab Sample ID: 680-85718-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.069		0.020	0.020	mg/L	20		8260B	TCLP

**Client Sample ID: RB-1023-1212**

**Lab Sample ID: 680-85718-3**

No Detections

TestAmerica Savannah

## Definitions/Glossary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Glossary

**Abbreviation** These commonly used abbreviations may or may not be present in this report.

✉	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica Savannah

## Sample Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-85718-1	RB-1008-1212	Solid	12/12/12 14:15	12/13/12 09:35
680-85718-2	RB-1045-1212	Solid	12/12/12 14:05	12/13/12 09:35
680-85718-3	RB-1023-1212	Solid	12/12/12 14:25	12/13/12 09:35

## Method Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

**Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

**Client Sample ID: RB-1008-1212**

**Lab Sample ID: 680-85718-1**

Matrix: Solid

Date Collected: 12/12/12 14:15

Date Received: 12/13/12 09:35

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.043		0.020	0.020	mg/L			12/17/12 15:08	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/17/12 15:08	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/17/12 15:08	20
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene		101		70 - 130				12/17/12 15:08	20
Dibromofluoromethane		92		70 - 130				12/17/12 15:08	20
Toluene-d8 (Surr)		98		70 - 130				12/17/12 15:08	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	57		0.010	0.010	%			12/13/12 11:55	1
Percent Solids	43		0.010	0.010	%			12/13/12 11:55	1

**Client Sample ID: RB-1045-1212**

**Lab Sample ID: 680-85718-2**

Matrix: Solid

Date Collected: 12/12/12 14:05

Date Received: 12/13/12 09:35

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.069		0.020	0.020	mg/L			12/17/12 16:13	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/17/12 16:13	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/17/12 16:13	20
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene		101		70 - 130				12/17/12 16:13	20
Dibromofluoromethane		91		70 - 130				12/17/12 16:13	20
Toluene-d8 (Surr)		98		70 - 130				12/17/12 16:13	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	55		0.010	0.010	%			12/13/12 11:55	1
Percent Solids	45		0.010	0.010	%			12/13/12 11:55	1

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

TestAmerica Job ID: 680-85718-1

Project/Site: Hattiesburg Sludge RB - 12/12/12

**Client Sample ID: RB-1023-1212**

**Lab Sample ID: 680-85718-3**

Matrix: Solid

Date Collected: 12/12/12 14:25

Date Received: 12/13/12 09:35

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/17/12 15:51	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/17/12 15:51	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	100		70 - 130					12/17/12 15:51	20
Dibromofluoromethane	93		70 - 130					12/17/12 15:51	20
Toluene-d8 (Surr)	97		70 - 130					12/17/12 15:51	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	56		0.010	0.010	%			12/13/12 11:55	1
Percent Solids	44		0.010	0.010	%			12/13/12 11:55	1

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 680-260062/7**

**Matrix: Solid**

**Analysis Batch: 260062**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
2-Butanone	0.010	U	0.010	0.010	mg/L			12/17/12 13:42	1
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
Chloroform	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L			12/17/12 13:42	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	99		70 - 130					12/17/12 13:42	1
Dibromofluoromethane	96		70 - 130					12/17/12 13:42	1
Toluene-d8 (Surr)	96		70 - 130					12/17/12 13:42	1

**Lab Sample ID: LCS 680-260062/4**

**Matrix: Solid**

**Analysis Batch: 260062**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike		LCS		Unit	D	%Rec	Limits	%Rec.
	Added	Result	Qualifier	Unit					
Benzene	0.0500	0.0459		mg/L		92	70 - 130		
2-Butanone	0.100	0.0865		mg/L		87	49 - 172		
Carbon tetrachloride	0.0500	0.0502		mg/L		100	70 - 130		
Chlorobenzene	0.0500	0.0512		mg/L		102	70 - 130		
Chloroform	0.0500	0.0494		mg/L		99	70 - 130		
1,2-Dichloroethane	0.0500	0.0490		mg/L		98	70 - 130		
1,1-Dichloroethene	0.0500	0.0472		mg/L		94	66 - 131		
Tetrachloroethene	0.0500	0.0552		mg/L		110	70 - 130		
Trichloroethene	0.0500	0.0528		mg/L		106	70 - 130		
Vinyl chloride	0.0500	0.0585		mg/L		117	67 - 134		
<b>LCS LCS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene	99		70 - 130						
Dibromofluoromethane	100		70 - 130						
Toluene-d8 (Surr)	100		70 - 130						

**Lab Sample ID: LCSD 680-260062/5**

**Matrix: Solid**

**Analysis Batch: 260062**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike		LCSD		Unit	D	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier	Unit						
Benzene	0.0500	0.0446		mg/L		89	70 - 130		3	30
2-Butanone	0.100	0.0834		mg/L		83	49 - 172		4	30
Carbon tetrachloride	0.0500	0.0479		mg/L		96	70 - 130		5	30
Chlorobenzene	0.0500	0.0489		mg/L		98	70 - 130		5	30
Chloroform	0.0500	0.0488		mg/L		98	70 - 130		1	30

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID:** LCSD 680-260062/5

**Matrix:** Solid

**Analysis Batch:** 260062

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA

Analyte	Spike Added	LCSD			D	%Rec	Limits	RPD	RPD Limit
		Result	Qualifier	Unit					
1,2-Dichloroethane	0.0500	0.0476		mg/L	95	70 - 130	3	30	
1,1-Dichloroethene	0.0500	0.0477		mg/L	95	66 - 131	1	30	
Tetrachloroethene	0.0500	0.0531		mg/L	106	70 - 130	4	30	
Trichloroethene	0.0500	0.0501		mg/L	100	70 - 130	5	30	
Vinyl chloride	0.0500	0.0559		mg/L	112	67 - 134	5	30	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	96		70 - 130
Dibromofluoromethane	96		70 - 130
Toluene-d8 (Sur)	97		70 - 130

**Lab Sample ID:** LB 680-259916/10-A LB

**Matrix:** Solid

**Analysis Batch:** 260062

**Client Sample ID:** Method Blank  
**Prep Type:** TCLP

Analyte	LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/17/12 14:47	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/17/12 14:47	20

Surrogate	LB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene	101		70 - 130		12/17/12 14:47	20
Dibromofluoromethane	92		70 - 130		12/17/12 14:47	20
Toluene-d8 (Sur)	99		70 - 130		12/17/12 14:47	20

TestAmerica Savannah

## QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

### GC/MS VOA

#### Leach Batch: 259916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85718-1	RB-1008-1212	TCLP	Solid	1311	
680-85718-2	RB-1045-1212	TCLP	Solid	1311	
680-85718-3	RB-1023-1212	TCLP	Solid	1311	
LB 680-259916/10-A LB	Method Blank	TCLP	Solid	1311	

#### Analysis Batch: 260062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85718-1	RB-1008-1212	TCLP	Solid	8260B	259916
680-85718-2	RB-1045-1212	TCLP	Solid	8260B	259916
680-85718-3	RB-1023-1212	TCLP	Solid	8260B	259916
LB 680-259916/10-A LB	Method Blank	TCLP	Solid	8260B	259916
LCS 680-260062/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-260062/5	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-260062/7	Method Blank	Total/NA	Solid	8260B	

### General Chemistry

#### Analysis Batch: 259654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85718-1	RB-1008-1212	Total/NA	Solid	Moisture	
680-85718-2	RB-1045-1212	Total/NA	Solid	Moisture	
680-85718-3	RB-1023-1212	Total/NA	Solid	Moisture	

# Lab Chronicle

Client: Ashland Inc.

TestAmerica Job ID: 680-85718-1

Project/Site: Hattiesburg Sludge RB - 12/12/12

## Client Sample ID: RB-1008-1212

Date Collected: 12/12/12 14:15

Date Received: 12/13/12 09:35

## Lab Sample ID: 680-85718-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			259916	12/15/12 03:02	KW	TAL SAV
TCLP	Analysis	8260B		20	260062	12/17/12 15:08	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	259654	12/13/12 11:55	FS	TAL SAV

## Client Sample ID: RB-1045-1212

Date Collected: 12/12/12 14:05

Date Received: 12/13/12 09:35

## Lab Sample ID: 680-85718-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			259916	12/15/12 03:02	KW	TAL SAV
TCLP	Analysis	8260B		20	260062	12/17/12 16:13	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	259654	12/13/12 11:55	FS	TAL SAV

## Client Sample ID: RB-1023-1212

Date Collected: 12/12/12 14:25

Date Received: 12/13/12 09:35

## Lab Sample ID: 680-85718-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			259916	12/15/12 03:02	KW	TAL SAV
TCLP	Analysis	8260B		20	260062	12/17/12 15:51	AJMC	TAL SAV
Total/NA	Analysis	Moisture		1	259654	12/13/12 11:55	FS	TAL SAV

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

## Certification Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB - 12/12/12

TestAmerica Job ID: 680-85718-1

### Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

TestAmerica Savannah

Serial Number 60126

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

*Hattiesburg*
 TestAmerica Savannah  
 5102 LaRoche Avenue  
 Savannah, GA 31404

 Website: www.testamericanainc.com  
 Phone: (912) 354-7858  
 Fax: (912) 352-0165

 Alternate Laboratory Name/Location

 Phoe:  
 Fax:

PROJECT REFERENCE		PROJECT NO.	PROJECT LOCATION (STATE)	MATRIX TYPE	REQUIRED ANALYSIS												PAGE	OF				
Hercules Hattiesburg		4501795258	MS																			
TAL (LAB) PROJECT MANAGER		P.O. NUMBER	CONTRACT NO.														STANDARD REPORT DELIVERY					
Lydia																	DATE DUE <i>10/10/05</i>					
CLIENT (SITE) PM		CLIENT PHONE	CLIENT FAX														EXPEDITED REPORT DELIVERY (SURCHARGE)					
CLIENT NAME		CLIENT E-MAIL															DATE DUE <i>10/10/05</i>					
CLIENT ADDRESS																						
COMPANY CONTRACTING THIS WORK (if applicable)																	NUMBER OF COOLERS SUBMITTED PER SHIPMENT: <i>1</i>					
SAMPLE	SAMPLE IDENTIFICATION			COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMI-SOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED												REMARKS	
DATE	TIME																					
12-12	1415	RB-1008-1212							✓ ✓												<i>Fast turn</i>	
11	1405	RB-1045-1212							✓ ✓												<i>Fast turn</i>	
11	1425	RB-1023-1212							✓ ✓												<i>Fast turn</i>	
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)					DATE	TIME	RELINQUISHED BY: (SIGNATURE)			DATE	TIME							
<i>John Tuba</i>		12/12	1700																			
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)					DATE	TIME	RECEIVED BY: (SIGNATURE)			DATE	TIME							
<i>W.W.S.</i>																						
LABORATORY USE ONLY																						
RECEIVED FOR LABORATORY BY: (SIGNATURE)		DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS															
<i>W.W.S.</i>		12/13/12	0935	YES <input type="radio"/>		680- 85718	3.0°															

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Savannah

5102 LaRoche Avenue

Savannah, GA 31404

Tel: (912)354-7858

TestAmerica Job ID: 680-85923-1

Client Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

For:

Ashland Inc.

Ashland Hercules Research Center

500 Hercules Rd Bldg 8139

Wilmington, Delaware 19808

Attn: Timothy Hassett

Lidya Gulizia

Authorized for release by:

12/28/2012 1:35:20 PM

Lidya Gulizia

Project Manager II

[lidya.gulizia@testamericainc.com](mailto:lidya.gulizia@testamericainc.com)

### LINKS

Review your project  
results through

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Have a Question?

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The  
Expert

Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

## Case Narrative

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

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**Job ID: 680-85923-1**

**Laboratory: TestAmerica Savannah**

Narrative

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### CASE NARRATIVE

**Client: Ashland Inc.**

**Project: Hattiesburg Sludge - RB 12/14 & 12/18/12**

**Report Number: 680-85923-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### **RECEIPT**

The samples were received on 12/19/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.6 C.

#### **TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)**

Samples RB-1010-1214 (680-85923-1) and RB-1012-1218 (680-85923-2) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 12/23/2012 and analyzed on 12/26/2012.

Surrogate recovery for the following sample(s) was outside the upper control limit: (LB 680-260836/11-A). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Samples RB-1010-1214 (680-85923-1)[20X] and RB-1012-1218 (680-85923-2)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the volatiles analyses.

All other quality control parameters were within the acceptance limits.

#### **PERCENT SOLIDS/MOISTURE**

Samples RB-1010-1214 (680-85923-1) and RB-1012-1218 (680-85923-2) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 12/19/2012.

No difficulties were encountered during the % solids/moisture analyses.

All quality control parameters were within the acceptance limits.

## Definitions/Glossary

Client: Ashland Inc.

TestAmerica Job ID: 680-85923-1

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♂	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Sample Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-85923-1	RB-1010-1214	Solid	12/14/12 15:30	12/19/12 09:43
680-85923-2	RB-1012-1218	Solid	12/18/12 15:00	12/19/12 09:43

TestAmerica Savannah

## Method Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

**Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

# Client Sample Results

Client: Ashland Inc.

TestAmerica Job ID: 680-85923-1

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

**Client Sample ID: RB-1010-1214**

**Lab Sample ID: 680-85923-1**

Matrix: Solid

Date Collected: 12/14/12 15:30

Date Received: 12/19/12 09:43

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.33		0.020	0.020	mg/L			12/26/12 22:03	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/26/12 22:03	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/26/12 22:03	20

**Surrogate**

	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		70 - 130		12/26/12 22:03	20
Dibromofluoromethane	74		70 - 130		12/26/12 22:03	20
Toluene-d8 (Surr)	108		70 - 130		12/26/12 22:03	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	48		0.010	0.010	%			12/19/12 11:05	1
Percent Solids	52		0.010	0.010	%			12/19/12 11:05	1

**Client Sample ID: RB-1012-1218**

**Lab Sample ID: 680-85923-2**

Matrix: Solid

Date Collected: 12/18/12 15:00

Date Received: 12/19/12 09:43

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.063		0.020	0.020	mg/L			12/26/12 22:32	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/26/12 22:32	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/26/12 22:32	20

**Surrogate**

	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		70 - 130		12/26/12 22:32	20
Dibromofluoromethane	75		70 - 130		12/26/12 22:32	20
Toluene-d8 (Surr)	118		70 - 130		12/26/12 22:32	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	66		0.010	0.010	%			12/19/12 11:06	1
Percent Solids	34		0.010	0.010	%			12/19/12 11:06	1

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 680-261108/7**

**Matrix: Solid**

**Analysis Batch: 261108**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
2-Butanone	0.010	U	0.010	0.010	mg/L			12/26/12 17:04	1
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
Chloroform	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L			12/26/12 17:04	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	96		70 - 130					12/26/12 17:04	1
Dibromofluoromethane	90		70 - 130					12/26/12 17:04	1
Toluene-d8 (Surr)	102		70 - 130					12/26/12 17:04	1

**Lab Sample ID: LCS 680-261108/5**

**Matrix: Solid**

**Analysis Batch: 261108**

Analyte	Spike		LCS	LCS	Unit	D	%Rec	Limits	%Rec.
	Added	Result							
Benzene	0.0500	0.0511			mg/L		102	74 - 123	
2-Butanone	0.100	0.110			mg/L		110	55 - 142	
Carbon tetrachloride	0.0500	0.0474			mg/L		95	70 - 131	
Chlorobenzene	0.0500	0.0519			mg/L		104	79 - 120	
Chloroform	0.0500	0.0488			mg/L		98	76 - 128	
1,2-Dichloroethane	0.0500	0.0473			mg/L		95	75 - 120	
1,1-Dichloroethene	0.0500	0.0462			mg/L		92	73 - 134	
Tetrachloroethene	0.0500	0.0614			mg/L		123	77 - 128	
Trichloroethene	0.0500	0.0510			mg/L		102	80 - 120	
Vinyl chloride	0.0500	0.0452			mg/L		90	58 - 141	
<b>LCS LCS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene	101		70 - 130						
Dibromofluoromethane	102		70 - 130						
Toluene-d8 (Surr)	102		70 - 130						

**Lab Sample ID: LCSD 680-261108/6**

**Matrix: Solid**

**Analysis Batch: 261108**

Analyte	Spike		LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
	Added	Result								
Benzene	0.0500	0.0481			mg/L		96	74 - 123	6	30
2-Butanone	0.100	0.102			mg/L		102	55 - 142	8	30
Carbon tetrachloride	0.0500	0.0415			mg/L		83	70 - 131	13	30
Chlorobenzene	0.0500	0.0480			mg/L		96	79 - 120	8	30
Chloroform	0.0500	0.0404			mg/L		81	76 - 128	19	30

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 680-261108/6**

**Matrix: Solid**

**Analysis Batch: 261108**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike		LCSD Result	LCSD Qualifier	Unit	D	%Rec.		RPD	RPD	Limit
	Added	%Rec					Limits	%Rec			
1,2-Dichloroethane	0.0500	0.0472	mg/L	94	75 - 120	0	30				
1,1-Dichloroethene	0.0500	0.0429	mg/L	86	73 - 134	8	30				
Tetrachloroethene	0.0500	0.0489	mg/L	98	77 - 128	23	30				
Trichloroethene	0.0500	0.0483	mg/L	97	80 - 120	5	30				
Vinyl chloride	0.0500	0.0335	mg/L	67	58 - 141	30	30				

Surrogate	LCSD		LCSD Qualifier	Limits
	LCSD %Recovery	LCSD Qualifier		
4-Bromofluorobenzene	98		70 - 130	
Dibromofluoromethane	90		70 - 130	
Toluene-d8 (Surr)	98		70 - 130	

**Lab Sample ID: LB 680-260836/11-A LB**

**Matrix: Solid**

**Analysis Batch: 261108**

**Client Sample ID: Method Blank**  
**Prep Type: TCLP**

Analyte	LB		RL	MDL	Unit	D	Prepared	Analyzed		Dil Fac
	Result	Qualifier						Prepared	Analyzed	
Benzene	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/26/12 20:37		20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
Chloroform	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/26/12 20:37		20

Surrogate	LB		RL	MDL	Unit	D	Prepared	Analyzed		Dil Fac
	LB %Recovery	LB Qualifier						Prepared	Analyzed	
4-Bromofluorobenzene	99		70 - 130					12/26/12 20:37		20
Dibromofluoromethane	89		70 - 130					12/26/12 20:37		20
Toluene-d8 (Surr)	133	X	70 - 130					12/26/12 20:37		20

TestAmerica Savannah

## QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

### GC/MS VOA

#### Leach Batch: 260836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85923-1	RB-1010-1214	TCLP	Solid	1311	
680-85923-2	RB-1012-1218	TCLP	Solid	1311	
LB 680-260836/11-A LB	Method Blank	TCLP	Solid	1311	

#### Analysis Batch: 261108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85923-1	RB-1010-1214	TCLP	Solid	8260B	260836
680-85923-2	RB-1012-1218	TCLP	Solid	8260B	260836
LB 680-260836/11-A LB	Method Blank	TCLP	Solid	8260B	260836
LCS 680-261108/5	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-261108/6	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-261108/7	Method Blank	Total/NA	Solid	8260B	

### General Chemistry

#### Analysis Batch: 260354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-85923-1	RB-1010-1214	Total/NA	Solid	Moisture	
680-85923-2	RB-1012-1218	Total/NA	Solid	Moisture	

TestAmerica Savannah

# Lab Chronicle

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

## Client Sample ID: RB-1010-1214

Date Collected: 12/14/12 15:30

Date Received: 12/19/12 09:43

## Lab Sample ID: 680-85923-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			260836	12/23/12 15:32	SSP	TAL SAV
TCLP	Analysis	8260B		20	261108	12/26/12 22:03	RB	TAL SAV
Total/NA	Analysis	Moisture		1	260354	12/19/12 11:05	ETB	TAL SAV

## Client Sample ID: RB-1012-1218

Date Collected: 12/18/12 15:00

Date Received: 12/19/12 09:43

## Lab Sample ID: 680-85923-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			260836	12/23/12 15:32	SSP	TAL SAV
TCLP	Analysis	8260B		20	261108	12/26/12 22:32	RB	TAL SAV
Total/NA	Analysis	Moisture		1	260354	12/19/12 11:06	ETB	TAL SAV

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 60128

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

 TestAmerica Savannah  
 5102 LaRoche Avenue  
 Savannah, GA 31404

 Website: www.testamericainc.com  
 Phone: (912) 354-7858  
 Fax: (912) 352-0165

 Alternate Laboratory Name/Location

 Phone:  
 Fax:

PROJECT REFERENCE <i>Hercules Hattiesburg</i>	PROJECT NO. <i>4501795258</i>	PROJECT LOCATION (STATE) <i>MS</i>	MATRIX TYPE	REQUIRED ANALYSIS						PAGE	OF		
TAL (LAB) PROJECT MANAGER <i>Lydia</i>	P.O. NUMBER	CONTRACT NO.										STANDARD REPORT DELIVERY	
CLIENT (SITE) PM	CLIENT PHONE-	CLIENT FAX										DATE DUE <i>12/14/08</i>	
CLIENT NAME	CLIENT E-MAIL											EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS												DATE DUE <i>12/14/08</i>	
COMPANY CONTRACTING THIS WORK (if applicable)												NUMBER OF COOLERS SUBMITTED PER SHIPMENT: <i>1</i>	
SAMPLE	SAMPLE IDENTIFICATION			COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT,...)	NUMBER OF CONTAINERS SUBMITTED				REMARKS
DATE	TIME				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>fast Turn</i>
12-14	1530	<i>RB - 1010 - 1214</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>fast Turn</i>
12-18	1500	<i>RB - 1012 - 1218</i>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<i>fast Turn</i>
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)			DATE	TIME	RELINQUISHED BY: (SIGNATURE)			DATE	TIME
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)			DATE	TIME	RECEIVED BY: (SIGNATURE)			DATE	TIME
LABORATORY USE ONLY													<i>b8067521</i>
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>DKL</i>		DATE <i>12/14/08</i>	TIME <i>0943</i>	CUSTODY INTACT YES <input checked="" type="radio"/> NO <input checked="" type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. <i>630-85923</i>	LABORATORY REMARKS <i>O.V.L</i>						

## Login Sample Receipt Checklist

Client: Ashland Inc.

Job Number: 680-85923-1

Login Number: 85923

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Certification Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge - RB 12/14 & 12/18/12

TestAmerica Job ID: 680-85923-1

### Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAP	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAP	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAP	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAP	6	30690	06-30-13
Louisiana	NELAP	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAP	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAP	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAP	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404  
Tel: (912)354-7858

TestAmerica Job ID: 680-86046-1

Client Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

For:

Ashland Inc.  
Ashland Hercules Research Center  
500 Hercules Rd Bldg 8139  
Wilmington, Delaware 19808

Attn: Timothy Hassett

Lidya Gulizia

Authorized for release by:  
1/3/2013 5:55:18 PM

Lidya Gulizia  
Project Manager II  
[lidya.gulizia@testamericainc.com](mailto:lidya.gulizia@testamericainc.com)

cc: Craig Derouen

John Ellis

### LINKS

Review your project  
results through  
**TotalAccess**

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The  
Expert

Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

## Case Narrative

Client: Ashland Inc.  
Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

**Job ID: 680-86046-1**

**Laboratory: TestAmerica Savannah**

Narrative

### CASE NARRATIVE

**Client: Ashland Inc.**

**Project: Hattiesburg Sludge RB 12/19-12/20/12**

**Report Number: 680-86046-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### **RECEIPT**

The samples were received on 12/21/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.8 C.

#### **TCLP VOLATILE ORGANIC COMPOUNDS (GC-MS)**

Samples RB-1040-1219 (680-86046-1), RB-1046-1219 (680-86046-2), RB-1048-1220 (680-86046-3) and RB-1022-1220 (680-86046-4) were analyzed for TCLP volatile organic compounds (GC-MS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 12/23/2012 and analyzed on 12/27/2012 and 12/31/2012.

Samples RB-1040-1219 (680-86046-1)[20X], RB-1046-1219 (680-86046-2)[20X], RB-1048-1220 (680-86046-3)[20X] and RB-1022-1220 (680-86046-4)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The laboratory control sample (LCS) for batch 261202 exceeded control limits for the following analyte: 2-Butanone. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Surrogate recovery for the following sample(s) was outside the upper control limit: (LB 680-260836/11-A). This QC sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No other difficulties were encountered during the volatiles analyses.

All other quality control parameters were within the acceptance limits.

#### **PERCENT SOLIDS/MOISTURE**

Samples RB-1040-1219 (680-86046-1), RB-1046-1219 (680-86046-2), RB-1048-1220 (680-86046-3) and RB-1022-1220 (680-86046-4) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 12/26/2012.

No difficulties were encountered during the % solids/moisture analyses.

All quality control parameters were within the acceptance limits.

# Definitions/Glossary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
*	LCS or LCSD exceeds the control limits

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
✓	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Sample Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-86046-1	RB-1040-1219	Solid	12/19/12 14:45	12/21/12 11:58
680-86046-2	RB-1046-1219	Solid	12/19/12 15:15	12/21/12 11:58
680-86046-3	RB-1048-1220	Solid	12/20/12 12:50	12/21/12 11:58
680-86046-4	RB-1022-1220	Solid	12/20/12 13:00	12/21/12 11:58

TestAmerica Savannah

## Method Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

**Protocol References:**

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

**Client Sample ID: RB-1040-1219**

**Lab Sample ID: 680-86046-1**

Matrix: Solid

Date Collected: 12/19/12 14:45

Date Received: 12/21/12 11:58

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<b>0.072</b>		0.020	0.020	mg/L			12/27/12 16:08	20
2-Butanone	0.20	U *	0.20	0.20	mg/L			12/27/12 16:08	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/27/12 16:08	20
<b>Surrogate</b>		%Recovery	Qualifier	<b>Limits</b>			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	102			70 - 130				12/27/12 16:08	20
Dibromofluoromethane	97			70 - 130				12/27/12 16:08	20
Toluene-d8 (Surr)	105			70 - 130				12/27/12 16:08	20

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	<b>64</b>		0.010	0.010	%			12/26/12 11:38	1
Percent Solids	<b>36</b>		0.010	0.010	%			12/26/12 11:38	1

**Client Sample ID: RB-1046-1219**

**Lab Sample ID: 680-86046-2**

Matrix: Solid

Date Collected: 12/19/12 15:15

Date Received: 12/21/12 11:58

## Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<b>0.56</b>		0.020	0.020	mg/L			12/27/12 16:29	20
2-Butanone	0.20	U *	0.20	0.20	mg/L			12/27/12 16:29	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/27/12 16:29	20
<b>Surrogate</b>		%Recovery	Qualifier	<b>Limits</b>			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	103			70 - 130				12/27/12 16:29	20
Dibromofluoromethane	98			70 - 130				12/27/12 16:29	20
Toluene-d8 (Surr)	104			70 - 130				12/27/12 16:29	20

## General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	<b>61</b>		0.010	0.010	%			12/26/12 11:38	1
Percent Solids	<b>39</b>		0.010	0.010	%			12/26/12 11:38	1

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

**Client Sample ID: RB-1048-1220**

**Lab Sample ID: 680-86046-3**

Matrix: Solid

Date Collected: 12/20/12 12:50

Date Received: 12/21/12 11:58

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.031		0.020	0.020	mg/L			12/31/12 14:38	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/31/12 14:38	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/31/12 14:38	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	95		70 - 130					12/31/12 14:38	20
Dibromofluoromethane	92		70 - 130					12/31/12 14:38	20
Toluene-d8 (Surr)	89		70 - 130					12/31/12 14:38	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	62		0.010	0.010	%			12/26/12 11:38	1
Percent Solids	38		0.010	0.010	%			12/26/12 11:38	1

**Client Sample ID: RB-1022-1220**

**Lab Sample ID: 680-86046-4**

Matrix: Solid

Date Collected: 12/20/12 13:00

Date Received: 12/21/12 11:58

**Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.20		0.020	0.020	mg/L			12/27/12 13:41	20
2-Butanone	0.20	U *	0.20	0.20	mg/L			12/27/12 13:41	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/27/12 13:41	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	98		70 - 130					12/27/12 13:41	20
Dibromofluoromethane	98		70 - 130					12/27/12 13:41	20
Toluene-d8 (Surr)	102		70 - 130					12/27/12 13:41	20

**General Chemistry**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19		0.010	0.010	%			12/26/12 11:38	1
Percent Solids	81		0.010	0.010	%			12/26/12 11:38	1

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 680-261202/6**

**Matrix: Solid**

**Analysis Batch: 261202**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
2-Butanone	0.010	U	0.010	0.010	mg/L			12/27/12 13:05	1
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
Chloroform	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L			12/27/12 13:05	1
<hr/>									
Surrogate	MB	MB	%Recovery	Qualifier	Limits	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
4-Bromofluorobenzene	93		70 - 130					12/27/12 13:05	1
Dibromofluoromethane	100		70 - 130					12/27/12 13:05	1
Toluene-d8 (Surr)	100		70 - 130					12/27/12 13:05	1

**Lab Sample ID: LCS 680-261202/4**

**Matrix: Solid**

**Analysis Batch: 261202**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits	%Rec.
	Added	Result	Qualifier					
Benzene	0.0500	0.0561		mg/L		112	74 - 123	
2-Butanone	0.100	0.162	*	mg/L		162	55 - 142	
Carbon tetrachloride	0.0500	0.0500		mg/L		100	70 - 131	
Chlorobenzene	0.0500	0.0473		mg/L		95	79 - 120	
Chloroform	0.0500	0.0531		mg/L		106	76 - 128	
1,2-Dichloroethane	0.0500	0.0493		mg/L		99	75 - 120	
1,1-Dichloroethene	0.0500	0.0513		mg/L		103	73 - 134	
Tetrachloroethene	0.0500	0.0480		mg/L		96	77 - 128	
Trichloroethene	0.0500	0.0504		mg/L		101	80 - 120	
Vinyl chloride	0.0500	0.0565		mg/L		113	58 - 141	
<hr/>								
Surrogate	LCS	LCS	%Recovery	Qualifier	Limits	D	%Rec	Limits
	Result	Qualifier						
4-Bromofluorobenzene	101		70 - 130					
Dibromofluoromethane	103		70 - 130					
Toluene-d8 (Surr)	109		70 - 130					

**Lab Sample ID: LCSD 680-261202/15**

**Matrix: Solid**

**Analysis Batch: 261202**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
	Added	Result	Qualifier						
Benzene	0.0500	0.0553		mg/L		111	74 - 123	1	30
2-Butanone	0.100	0.137		mg/L		137	55 - 142	16	30
Carbon tetrachloride	0.0500	0.0496		mg/L		99	70 - 131	1	30
Chlorobenzene	0.0500	0.0481		mg/L		96	79 - 120	2	30
Chloroform	0.0500	0.0519		mg/L		104	76 - 128	2	30

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 680-261202/15**

**Matrix: Solid**

**Analysis Batch: 261202**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike		LCSD Result	LCSD Qualifier	Unit	D	%Rec.		RPD	
	Added	%Rec					Limits	RPD	Limit	
1,2-Dichloroethane	0.0500	0.0468	mg/L	94	75 - 120	5	30			
1,1-Dichloroethene	0.0500	0.0513	mg/L	103	73 - 134	0	30			
Tetrachloroethene	0.0500	0.0504	mg/L	101	77 - 128	5	30			
Trichloroethene	0.0500	0.0510	mg/L	102	80 - 120	1	30			
Vinyl chloride	0.0500	0.0469	mg/L	94	58 - 141	19	30			

Surrogate	LCSD		LCSD Qualifier	Limits						
	%Recovery	Qualifer			Dil Fac	Prepared	Analyzed	Dil Fac		
4-Bromofluorobenzene	101			70 - 130						
Dibromofluoromethane	100			70 - 130						
Toluene-d8 (Surr)	107			70 - 130						

**Lab Sample ID: MB 680-261517/7**

**Matrix: Solid**

**Analysis Batch: 261517**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier					Prepared	Analyzed	Dil Fac		
Benzene	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
2-Butanone	0.010	U	0.010	0.010	mg/L			12/31/12 12:34		1	
Carbon tetrachloride	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
Chlorobenzene	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
Chloroform	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
1,2-Dichloroethane	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
1,1-Dichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
Tetrachloroethene	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
Trichloroethene	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	
Vinyl chloride	0.0010	U	0.0010	0.0010	mg/L			12/31/12 12:34		1	

Surrogate	MB		Limits	Prepared		Analyzed		Dil Fac	
	%Recovery	Qualifer		Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene	96		70 - 130			1	12/31/12 12:34		
Dibromofluoromethane	102		70 - 130			1	12/31/12 12:34		
Toluene-d8 (Surr)	105		70 - 130			1	12/31/12 12:34		

**Lab Sample ID: LCS 680-261517/4**

**Matrix: Solid**

**Analysis Batch: 261517**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec.			
	Added	%Rec					Limits	RPD	Limit	
Benzene	0.0500	0.0529	mg/L	106	74 - 123					
2-Butanone	0.100	0.0925	mg/L	93	55 - 142					
Carbon tetrachloride	0.0500	0.0494	mg/L	99	70 - 131					
Chlorobenzene	0.0500	0.0497	mg/L	99	79 - 120					
Chloroform	0.0500	0.0491	mg/L	98	76 - 128					
1,2-Dichloroethane	0.0500	0.0490	mg/L	98	75 - 120					
1,1-Dichloroethene	0.0500	0.0494	mg/L	99	73 - 134					
Tetrachloroethene	0.0500	0.0567	mg/L	113	77 - 128					
Trichloroethene	0.0500	0.0559	mg/L	112	80 - 120					
Vinyl chloride	0.0500	0.0490	mg/L	98	58 - 141					

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 680-261517/4**

**Matrix: Solid**

**Analysis Batch: 261517**

Surrogate	LCS	LCS	%Recovery	Qualifier	Limits
4-Bromofluorobenzene			98		70 - 130
Dibromofluoromethane			100		70 - 130
Toluene-d8 (Surr)			98		70 - 130

**Lab Sample ID: LCSD 680-261517/5**

**Matrix: Solid**

**Analysis Batch: 261517**

Analyte	Spike		LCSD	LCSD	Unit	D	%Rec	Limits	RPD	Limit
	Added	Result								
Benzene	0.0500	0.0506	mg/L	101	74 - 123	4	30			
2-Butanone	0.100	0.0891	mg/L	89	55 - 142	4	30			
Carbon tetrachloride	0.0500	0.0469	mg/L	94	70 - 131	5	30			
Chlorobenzene	0.0500	0.0486	mg/L	97	79 - 120	2	30			
Chloroform	0.0500	0.0469	mg/L	94	76 - 128	4	30			
1,2-Dichloroethane	0.0500	0.0468	mg/L	94	75 - 120	5	30			
1,1-Dichloroethene	0.0500	0.0502	mg/L	100	73 - 134	2	30			
Tetrachloroethene	0.0500	0.0552	mg/L	110	77 - 128	3	30			
Trichloroethene	0.0500	0.0534	mg/L	107	80 - 120	5	30			
Vinyl chloride	0.0500	0.0493	mg/L	99	58 - 141	1	30			

Surrogate	LCS	LCS	%Recovery	Qualifier	Limits
4-Bromofluorobenzene			97		70 - 130
Dibromofluoromethane			97		70 - 130
Toluene-d8 (Surr)			94		70 - 130

**Lab Sample ID: LB 680-260836/11-A LB**

**Matrix: Solid**

**Analysis Batch: 261202**

Analyte	LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
2-Butanone	0.20	U	0.20	0.20	mg/L			12/27/12 18:36	20
Carbon tetrachloride	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
Chlorobenzene	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
Chloroform	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
1,2-Dichloroethane	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
1,1-Dichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
Tetrachloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
Trichloroethene	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20
Vinyl chloride	0.020	U	0.020	0.020	mg/L			12/27/12 18:36	20

Surrogate	LBS	LBS	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene			99		70 - 130			20
Dibromofluoromethane			99		70 - 130			20
Toluene-d8 (Surr)			101		70 - 130			20

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

TestAmerica Job ID: 680-86046-1

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 680-86046-4 DU**

**Matrix: Solid**

**Analysis Batch: 261202**

**Client Sample ID: RB-1022-1220**

**Prep Type: TCLP**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Benzene	0.20		0.161		mg/L		21	
2-Butanone	0.20	U *	0.20	U *	mg/L		NC	
Carbon tetrachloride	0.020	U	0.020	U	mg/L		NC	
Chlorobenzene	0.020	U	0.020	U	mg/L		NC	
Chloroform	0.020	U	0.020	U	mg/L		NC	
1,2-Dichloroethane	0.020	U	0.020	U	mg/L		NC	
1,1-Dichloroethene	0.020	U	0.020	U	mg/L		NC	
Tetrachloroethylene	0.020	U	0.020	U	mg/L		NC	
Trichloroethylene	0.020	U	0.020	U	mg/L		NC	
Vinyl chloride	0.020	U	0.020	U	mg/L		NC	
<b>DU DU</b>								
Surrogate	%Recovery	Qualifier	<b>Limits</b>					
4-Bromofluorobenzene	103		70 - 130					
Dibromofluoromethane	95		70 - 130					
Toluene-d8 (Surf)	102		70 - 130					

TestAmerica Savannah

## QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

### GC/MS VOA

#### Leach Batch: 260836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86046-1	RB-1040-1219	TCLP	Solid	1311	
680-86046-2	RB-1046-1219	TCLP	Solid	1311	
680-86046-3	RB-1048-1220	TCLP	Solid	1311	
680-86046-4	RB-1022-1220	TCLP	Solid	1311	
680-86046-4 DU	RB-1022-1220	TCLP	Solid	1311	
LB 680-260836/11-A LB	Method Blank	TCLP	Solid	1311	

#### Analysis Batch: 261202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86046-1	RB-1040-1219	TCLP	Solid	8260B	260836
680-86046-2	RB-1046-1219	TCLP	Solid	8260B	260836
680-86046-4	RB-1022-1220	TCLP	Solid	8260B	260836
680-86046-4 DU	RB-1022-1220	TCLP	Solid	8260B	260836
LB 680-260836/11-A LB	Method Blank	TCLP	Solid	8260B	260836
LCS 680-261202/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-261202/15	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-261202/6	Method Blank	Total/NA	Solid	8260B	

#### Analysis Batch: 261517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86046-3	RB-1048-1220	TCLP	Solid	8260B	260836
LCS 680-261517/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-261517/5	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-261517/7	Method Blank	Total/NA	Solid	8260B	

### General Chemistry

#### Analysis Batch: 261004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86046-1	RB-1040-1219	Total/NA	Solid	Moisture	
680-86046-2	RB-1046-1219	Total/NA	Solid	Moisture	
680-86046-3	RB-1048-1220	Total/NA	Solid	Moisture	
680-86046-4	RB-1022-1220	Total/NA	Solid	Moisture	

# Lab Chronicle

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

## Client Sample ID: RB-1040-1219

Lab Sample ID: 680-86046-1

Matrix: Solid

Date Collected: 12/19/12 14:45

Date Received: 12/21/12 11:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			260836	12/23/12 15:32	SSP	TAL SAV
TCLP	Analysis	8260B		20	261202	12/27/12 16:08	JD	TAL SAV
Total/NA	Analysis	Moisture		1	261004	12/26/12 11:38	FS	TAL SAV

## Client Sample ID: RB-1046-1219

Lab Sample ID: 680-86046-2

Matrix: Solid

Date Collected: 12/19/12 15:15

Date Received: 12/21/12 11:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			260836	12/23/12 15:32	SSP	TAL SAV
TCLP	Analysis	8260B		20	261202	12/27/12 16:29	JD	TAL SAV
Total/NA	Analysis	Moisture		1	261004	12/26/12 11:38	FS	TAL SAV

## Client Sample ID: RB-1048-1220

Lab Sample ID: 680-86046-3

Matrix: Solid

Date Collected: 12/20/12 12:50

Date Received: 12/21/12 11:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			260836	12/23/12 15:32	SSP	TAL SAV
TCLP	Analysis	8260B		20	261517	12/31/12 14:38	RB	TAL SAV
Total/NA	Analysis	Moisture		1	261004	12/26/12 11:38	FS	TAL SAV

## Client Sample ID: RB-1022-1220

Lab Sample ID: 680-86046-4

Matrix: Solid

Date Collected: 12/20/12 13:00

Date Received: 12/21/12 11:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			260836	12/23/12 15:32	SSP	TAL SAV
TCLP	Analysis	8260B		20	261202	12/27/12 13:41	JD	TAL SAV
Total/NA	Analysis	Moisture		1	261004	12/26/12 11:38	FS	TAL SAV

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

# TestAmerica

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THE LEADER IN ENVIRONMENTAL TESTING

				<input checked="" type="checkbox"/> TestAmerica Savannah 5102 LaRoche Avenue Savannah, GA 31404		Website: <a href="http://www.testamericainc.com">www.testamericainc.com</a> Phone: (912) 354-7858 Fax: (912) 352-0165					
				<input type="checkbox"/> Alternate Laboratory Name/Location  Phone: Fax:							
PROJECT REFERENCE <i>Hercules Hattiesburg</i>		PROJECT NO. <i>4501795258</i>	PROJECT LOCATION (STATE) <i>MS</i>	MATRIX TYPE	REQUIRED ANALYSIS			PAGE	OF		
TAL (LAB) PROJECT MANAGER <i>Ludia</i>		P.O. NUMBER	CONTRACT NO.								
CLIENT (SITE) PM		CLIENT PHONE	CLIENT FAX								
CLIENT NAME		CLIENT E-MAIL									
CLIENT ADDRESS											
COMPANY CONTRACTING THIS WORK (if applicable)											
SAMPLE	SAMPLE IDENTIFICATION			COMPOSITE (C) OR GRAB (G) / INDICATE	AQUEOUS (WATER)	SOLID OR SEMI-SOLID	AIR	NUMBER OF CONTAINERS SUBMITTED			REMARKS
DATE	TIME				✓	✓	✓				Fast Turn
12-19	1445	RB - 1040 - 1219			✓	✓	✓				Fast Turn
12-19	1515	RB - 1046 - 1219			✓	✓	✓				Fast Turn
12-20	1250	RB - 1048 - 1220			✓	✓	✓				Fast Turn
12-20	1300	RB - 1022 - 1220			✓	✓	✓				Fast Turn
RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
<i>[Signature]</i>		12-20-12	1700	<i>[Signature]</i>							
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME
LABORATORY USE ONLY											
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>[Signature]</i>	DATE 12/21/12	TIME 1158	CUSTODY INTACT <input checked="" type="radio"/> <input type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. 680-86046	LABORATORY REMARKS 2.8°C					

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404

Website: www.testamericainc.com  
Phone: (912) 354-7858  
Fax: (912) 352-0165

 Alternate Laboratory Name/LocationPhone:  
Fax:

PROJECT REFERENCE <i>Hercules Hattiesburg</i>		PROJECT NO. <b>4501795258</b>	PROJECT LOCATION (STATE) <b>MS</b>	MATRIX TYPE	REQUIRED ANALYSIS								PAGE	OF				
TAL (LAB) PROJECT MANAGER <i>Ludia</i>		P.O. NUMBER	CONTRACT NO.										STANDARD REPORT DELIVERY					
CLIENT (SITE) PM		CLIENT PHONE	CLIENT FAX										DATE DUE _____					
CLIENT NAME		CLIENT E-MAIL												EXPEDITED REPORT DELIVERY (SURCHARGE)				
CLIENT ADDRESS														DATE DUE _____				
COMPANY CONTRACTING THIS WORK (if applicable)														NUMBER OF COOLERS SUBMITTED PER SHIPMENT:				
SAMPLE		SAMPLE IDENTIFICATION			COMPOSITE (C) OR GRAB (G) / INDICATE AQUEOUS (WATER)	SOLID OR SEMI-SOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED								REMARKS	
DATE	TIME				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									<i>Fast Turn</i>	
12-19	1445	RB - 1040 - 1219			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									<i>Fast Turn</i>	
12-19	1515	RB - 1046 - 1219			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									<i>Fast Turn</i>	
12-20	1250	RB - 1048 - 1220			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									<i>Fast Turn</i>	
12-20	1300	RB - 1022 - 1220			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									<i>Fast Turn</i>	
RELINQUISHED BY: (SIGNATURE)		DATE <i>12-20-12</i>	TIME <i>1700</i>	RELINQUISHED BY: (SIGNATURE)			DATE	TIME	RELINQUISHED BY: (SIGNATURE)								DATE	TIME
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)			DATE	TIME	RECEIVED BY: (SIGNATURE)								DATE	TIME
LABORATORY USE ONLY																		
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>Reagan</i>		DATE <i>12/21/12</i>	TIME <i>1158</i>	CUSTODY INTACT YES <input checked="" type="radio"/> NO <input checked="" type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. <i>680-86046</i>	LABORATORY REMARKS <i>2.8°C</i>											

## Login Sample Receipt Checklist

Client: Ashland Inc.

Job Number: 680-86046-1

**Login Number: 86046**

**List Source: TestAmerica Savannah**

**List Number: 1**

**Creator: Conner, Keaton**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	Insufficient volume received for MS/MSD.
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Certification Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB 12/19-12/20/12

TestAmerica Job ID: 680-86046-1

## Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAP	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAP	4	E87052	06-30-13
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAP	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAP	6	30690	06-30-13
Louisiana	NELAP	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAP	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAP	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAP	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

TestAmerica Savannah

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Savannah  
5102 LaRoche Avenue  
Savannah, GA 31404  
Tel: (912)354-7858

TestAmerica Job ID: 680-86389-1

Client Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

For:

Ashland Inc.  
Ashland Hercules Research Center  
500 Hercules Rd Bldg 8139  
Wilmington, Delaware 19808

Attn: Timothy Hassett

Lidya Gulizia

Authorized for release by:  
1/18/2013 4:52:33 PM

Lidya Gulizia  
Project Manager II  
[lidya.gulizia@testamericainc.com](mailto:lidya.gulizia@testamericainc.com)

cc: Craig Derouen

John Ellis

### LINKS

Review your project  
results through

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Have a Question?

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Expert

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[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

## Case Narrative

Client: Ashland Inc.  
Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

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**Job ID: 680-86389-1**

**Laboratory: TestAmerica Savannah**

Narrative

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### CASE NARRATIVE

**Client: Ashland Inc.**

**Project: Hattiesburg Sludge RB-1046 UHC JAN 2013**

**Report Number: 680-86389-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### RECEIPT

The samples were received on 01/10/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.8 C.

#### VOLATILE ORGANIC COMPOUNDS (GC-MS)

No difficulties were encountered during the volatiles analysis.

All quality control parameters were within the acceptance limits.

#### SEMIVOLATILE ORGANIC COMPOUNDS BY GCMS - LOW LEVEL

Sample RB-1046-0109 (680-86389-1) was analyzed for Semivolatile Organic Compounds by GCMS - Low Level in accordance with EPA SW-846 Method 8270C. The samples were prepared on 01/10/2013 and analyzed on 01/13/2013.

Sample RB-1046-0109 (680-86389-1) was analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were prepared on 01/10/2013 and analyzed on 01/18/2013.

Due to the matrix, the following sample(s) could not be concentrated to the final method required volume: (680-86389-1 MS), (680-86389-1 MSD), RB-1046-0109 (680-86389-1). The reporting limits (RLs) are elevated proportionately.

The following sample(s) was diluted due to the nature of the sample matrix and/OR abundance of target analytes : (680-86389-1 MSD), RB-1046-0109 (680-86389-1). As such, surrogate recoveries are not reported, and elevated reporting limits (RLs) are provided.

Matrix spikes for batch 262348 could not be recovered due to sample matrix interferences which required sample dilution. The associated laboratory control sample (LCS) met acceptance criteria.

The method blank for preparation batch 262348 contained Diphenyl Oxide above the reporting limit (RL). The associated sample(s) contained detects for this analyte at concentrations greater than 10X the value found in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

The laboratory control sample for batch 262348 exceeded control limits for the following analyte(s): p-phenylene diamine and hexachlorophene. These have been identified as a poor performing analytes when analyzed using this method; therefore,

## Case Narrative

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

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### Job ID: 680-86389-1 (Continued)

#### Laboratory: TestAmerica Savannah (Continued)

re-extraction/re-analysis was not performed.

Sample RB-1046-0109 (680-86389-1)[100X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the Semivolatile Organic Compounds by GCMS - Low Level analysis.

All other quality control parameters were within the acceptance limits.

#### PESTICIDES AND PCBs

Sample RB-1046-0109 (680-86389-1) was analyzed for Pesticides and PCBs in accordance with EPA SW846 Method 8081A\_8082. The samples were prepared on 01/11/2013 and analyzed on 01/15/2013.

This method incorporates 2nd column confirmation. Corrective action is not taken for surrogate/spike compounds unless results from both columns are unacceptable. Results outside criteria are qualified.

Due to the level of dilution required for the following sample(s), surrogate recoveries are not reported: RB-1046-0109 (680-86389-1).

The following sample(s) was diluted due to the nature of the sample matrix: (680-86293-3 MS), (680-86293-3 MSD). As such, surrogate and spike recoveries were diluted out and are not reported.

The following sample(s) was diluted due to the nature of the sample matrix: RB-1046-0109 (680-86389-1). Elevated reporting limits (RLs) are provided. PCB1248 appeared to be present in the 10X dilution. However the matrix caused shift in the peaks of the pattern. Therefore the sample was re-analyzed at a larger dilution to confirm the presence of PCB-1248.

Samples RB-1046-0109 (680-86389-1)[10X] and RB-1046-0109 (680-86389-1)[40X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the Pesticides and PCBs analysis.

All other quality control parameters were within the acceptance limits.

#### CHLORINATED HERBICIDES

Sample RB-1046-0109 (680-86389-1) was analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 01/10/2013 and analyzed on 01/12/2013.

This method incorporates 2nd column confirmation. Corrective action is not taken for surrogate/spike compounds unless results from both columns are unacceptable. Results outside criteria are qualified.

The following sample(s) was diluted due to the physical appearance and could not be concentrated down to the method required volumes due to the matrix: RB-1046-0109 (680-86389-1). The sample had characteristics of an oil and was sticking to sides of the vials. Elevated reporting limits (RL) are provided.

Sample RB-1046-0109 (680-86389-1)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the herbicides analysis.

All other quality control parameters were within the acceptance limits.

#### TOTAL METALS (ICPMS)

Sample RB-1046-0109 (680-86389-1) was analyzed for total metals (ICPMS) in accordance with EPA SW-846 Method 6020. The samples were prepared and analyzed on 01/14/2013.

Due to the high concentration of Barium, Cobalt, Copper,Nickel, Lead, and Zinc, the matrix spike / matrix spike duplicate (MS/MSD) for batch 262620 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

## Case Narrative

Client: Ashland Inc.  
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#### Laboratory: TestAmerica Savannah (Continued)

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Chromium and Antimony on batch 262620 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

The matrix spike / matrix spike duplicate (MS/MSD) precision for Copper and Antimony on batch 262620 was outside control limits. The associated laboratory control sample duplicate (LCS) precision met acceptance criteria.

No other difficulties were encountered during the metals analysis.

All other quality control parameters were within the acceptance limits.

#### TOTAL MERCURY

Sample RB-1046-0109 (680-86389-1) was analyzed for total mercury in accordance with EPA SW-846 Method 7471A. The samples were prepared on 01/14/2013 and analyzed on 01/16/2013.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 680-262707 were outside control limits for mercury. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other difficulties were encountered during the mercury analysis.

All other quality control parameters were within the acceptance limits.

#### CYANIDE

Sample RB-1046-0109 (680-86389-1) was analyzed for cyanide in accordance with EPA SW-846 Method 9012A. The samples were leached on 01/17/2013, and prepared and analyzed on 01/18/2013.

Sample RB-1046-0109 (680-86389-1)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the cyanide analysis.

All other quality control parameters were within the acceptance limits.

#### TOTAL SULFIDE

Sample RB-1046-0109 (680-86389-1) was analyzed for total sulfide in accordance with EPA SW-846 Method 9034. The samples were prepared and analyzed on 01/17/2013.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 263133 were outside control limits @ 149 and 143 %. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other difficulties were encountered during the sulfide analysis.

All other quality control parameters were within the acceptance limits.

#### ANIONS BY IC

Sample RB-1046-0109 (680-86389-1) was analyzed for Anions by IC in accordance with EPA SW-846 Method 9056 (DI Leach). The samples were leached on 01/14/2013 and analyzed on 01/16/2013.

Sample RB-1046-0109 (680-86389-1)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analysis.

All quality control parameters were within the acceptance limits.

## Sample Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-86389-1	RB-1046-0109	Solid	01/09/13 15:10	01/10/13 09:46

## Method Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL SAV
8081A_8082	Organochlorine Pesticides & PCBs (GC)	SW846	TAL SAV
8151A	Herbicides (GC)	SW846	TAL SAV
6020	Metals (ICP/MS)	SW846	TAL SAV
7471A	Mercury (CVAA)	SW846	TAL SAV
9012A	Cyanide, Total and/or Amenable	SW846	TAL SAV
9034	Sulfide, Acid Soluble and Insoluble (Titrimetric)	SW846	TAL SAV
9056	Anions, Ion Chromatography	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV

### Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

## Definitions/Glossary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

#### GC/MS Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
B	Compound was found in the blank and sample.
-	LCS or LCSD exceeds the control limits
X	Surrogate is outside control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

#### GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
P	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

#### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	RPD of the MS and MSD exceeds the control limits

#### General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
%	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)

## Definitions/Glossary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

### Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: 680-86389-1**

Matrix: Solid

Percent Solids: 74.6

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	870000	U	870000	190000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Acetonitrile	3500000	U	3500000	720000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Acrolein	1700000	U	1700000	420000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Acrylonitrile	1700000	U	1700000	590000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Benzene	87000	U	87000	13000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Dichlorobromomethane	87000	U	87000	17000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Bromoform	87000	U	87000	26000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Bromomethane	87000	U	87000	26000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
2-Butanone (MEK)	440000	U	440000	42000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Carbon disulfide	87000	U	87000	19000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Carbon tetrachloride	87000	U	87000	15000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Chlorobenzene	87000	U	87000	17000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Chloroethane	87000	U	87000	47000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Chloroform	87000	U	87000	19000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Chloromethane	87000	U	87000	17000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
2-Chloro-1,3-butadiene	87000	U	87000	37000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
3-Chloro-1-propene	87000	U	87000	38000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Chlorodibromomethane	87000	U	87000	30000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,2-Dibromo-3-Chloropropane	170000	U	170000	77000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Ethylene Dibromide	87000	U	87000	26000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Dibromomethane	87000	U	87000	30000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
trans-1,4-Dichloro-2-butene	170000	U	170000	51000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Dichlorodifluoromethane	87000	U	87000	16000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,1-Dichloroethane	87000	U	87000	19000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,2-Dichloroethane	87000	U	87000	19000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,1-Dichloroethene	87000	U	87000	26000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
trans-1,2-Dichloroethene	87000	U	87000	11000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,2-Dichloropropane	87000	U	87000	15000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
cis-1,3-Dichloropropene	87000	U	87000	15000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
trans-1,3-Dichloropropene	87000	U	87000	15000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Ethylbenzene	87000	U	87000	23000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Ethyl methacrylate	87000	U	87000	59000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
2-Hexanone	440000	U	440000	58000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Iodomethane	87000	U	87000	31000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Isobutyl alcohol	3500000	U	3500000	910000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Methacrylonitrile	1700000	U	1700000	400000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Methylene Chloride	87000	U	87000	17000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Methyl methacrylate	170000	U	170000	79000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
4-Methyl-2-pentanone (MIBK)	440000	U	440000	73000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Pentachloroethane	440000	U	440000	110000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Propionitrile	1700000	U	1700000	450000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Styrene	87000	U	87000	16000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,1,1,2-Tetrachloroethane	87000	U	87000	42000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,1,2,2-Tetrachloroethane	87000	U	87000	28000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Tetrachloroethene	87000	U	87000	33000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
<b>Toluene</b>	<b>1800000</b>		87000	15000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,1,1-Trichloroethane	87000	U	87000	10000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,1,2-Trichloroethane	87000	U	87000	23000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Trichloroethene	87000	U	87000	23000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: 680-86389-1**

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/10/13 09:46

Percent Solids: 74.6

**Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	87000	U	87000	21000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
1,2,3-Trichloropropane	87000	U	87000	42000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Vinyl acetate	170000	U	170000	44000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Vinyl chloride	87000	U	87000	26000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
Xylenes, Total	170000	U	170000	19000	ug/Kg	⊗	01/10/13 11:46	01/18/13 13:39	5000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	90		65 - 130				01/10/13 11:46	01/18/13 13:39	5000
Dibromofluoromethane	106		65 - 130				01/10/13 11:46	01/18/13 13:39	5000
Toluene-d8 (Surr)	90		65 - 130				01/10/13 11:46	01/18/13 13:39	5000

**Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Acenaphthylene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Acetophenone	44000	U	44000	9100	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Acetylaminofluorene	44000	U	44000	44000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
alpha,alpha-Dimethyl phenethylamine	9000000	U	9000000	440000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Aminobiphenyl	88000	U	88000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Aniline	88000	U	88000	11000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Anthracene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Aramite, Total	88000	U	88000	6400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Benzo[a]anthracene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Benzo[a]pyrene	9000	U	9000	1600	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Benzo[b]fluoranthene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Benzo[g,h,i]perylene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Benzo[k]fluoranthene	9000	U	9000	2700	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Benzyl alcohol	44000	U	44000	8200	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
<b>1,1'-Biphenyl</b>	<b>340000</b>			44000	9700 ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Bis(2-chloroethoxy)methane	44000	U	44000	8700	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Bis(2-chloroethyl)ether	44000	U	44000	8700	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
bis (2-chloroisopropyl) ether	44000	U	44000	9700	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Bis(2-ethylhexyl) phthalate	88000	U	88000	8000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Bromophenyl phenyl ether	44000	U	44000	9300	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Butyl benzyl phthalate	44000	U	44000	7400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Chloroaniline	88000	U	88000	7000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Chloro-3-methylphenol	44000	U	44000	9400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Chloronaphthalene	44000	U	44000	8000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Chlorophenol	44000	U	44000	7100	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Chlorophenyl phenyl ether	44000	U	44000	8600	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Chrysene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Diallate	44000	U	44000	7500	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Dibenz(a,h)anthracene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Dibenzofuran	44000	U	44000	9000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
1,2-Dichlorobenzene	44000	U	44000	12000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
1,3-Dichlorobenzene	44000	U	44000	7500	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
1,4-Dichlorobenzene	44000	U	44000	7000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
3,3'-Dichlorobenzidine	88000	U	88000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2,4-Dichlorophenol	44000	U	44000	9700	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2,6-Dichlorophenol	44000	U	44000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: 680-86389-1**

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/10/13 09:46

Percent Solids: 74.6

**Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diethyl phthalate	44000	U	44000	9900	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Dimethoate	44000	U	44000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
7,12-Dimethylbenz(a)anthracene	44000	U	44000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
3,3'-Dimethylbenzidine	88000	U	88000	88000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2,4-Dimethylphenol	88000	U	88000	10000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Dimethyl phthalate	44000	U	44000	10000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Di-n-butyl phthalate	230000	U	230000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
1,3-Dinitrobenzene	44000	U	44000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4,6-Dinitro-2-methylphenol	230000	U	230000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2,4-Dinitrophenol	440000	U	440000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2,4-Dinitrotoluene	44000	U	44000	10000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2,6-Dinitrotoluene	44000	U	44000	11000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Di-n-octyl phthalate	44000	U	44000	4800	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Dinoseb	88000	U	88000	8300	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
1,4-Dioxane	44000	U	44000	4600	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
<b>Diphenyl oxide</b>	<b>890000</b>	<b>B</b>		44000	7200	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27
Disulfoton	44000	U	44000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Ethyl methanesulfonate	88000	U	88000	10000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Ethyl Parathion	44000	U	44000	44000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Famphur	44000	U	44000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Fluoranthene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Fluorene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Hexachlorobenzene	44000	U	44000	10000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Hexachlorobutadiene	44000	U	44000	9100	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Hexachlorocyclopentadiene	88000	U	88000	5000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Hexachloroethane	44000	U	44000	7800	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Hexachlorophene	23000000	U *	23000000	3200000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Hexachloropropene	44000	U	44000	7100	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Indeno[1,2,3-cd]pyrene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Isophorone	44000	U	44000	9400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Iosafrole	44000	U	44000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Methapyrilene	9000000	U	9000000	44000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
3-Methylcholanthrene	44000	U	44000	44000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Methyl methanesulfonate	44000	U	44000	5100	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Methylnaphthalene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Methyl parathion	44000	U	44000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Methylphenol	44000	U	44000	8400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
3 & 4 Methylphenol	44000	U	44000	9800	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Naphthalene	9000	U	9000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
1,4-Naphthoquinone	44000	U	44000	4400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
1-Naphthylamine	88000	U	88000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Naphthylamine	88000	U	88000	23000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Nitroaniline	230000	U	230000	9400	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
3-Nitroaniline	230000	U	230000	9000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Nitroaniline	230000	U	230000	11000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
Nitrobenzene	44000	U	44000	8800	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
2-Nitrophenol	44000	U	44000	7800	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Nitrophenol	230000	U	230000	98000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100
4-Nitroquinoline-1-oxide	440000	U	440000	56000	ug/Kg	⊗	01/10/13 17:58	01/13/13 15:27	100

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: 680-86389-1**

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/10/13 09:46

Percent Solids: 74.6

**Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitro-o-toluidine	44000	U	44000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosodiethylamine	88000	U	88000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosodimethylamine	44000	U	44000	25000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosodi-n-butylamine	44000	U	44000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosodi-n-propylamine	44000	U	44000	10000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosodiphenylamine	44000	U	44000	8200	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosomethylethylamine	44000	U	44000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosomorpholine	44000	U	44000	6000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosopiperidine	44000	U	44000	4600	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
N-Nitrosopyrrolidine	44000	U	44000	4800	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
o,o",o"-Triethylphosphorothioate	88000	U	88000	5900	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
p-Dimethylamino azobenzene	44000	U	44000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Pentachlorobenzene	44000	U	44000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Pentachloronitrobenzene	44000	U	44000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Pentachlorophenol	230000	U	230000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Phenacetin	44000	U	44000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Phenanthrene	9000	U	9000	3200	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Phenol	44000	U	44000	8700	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Phorate	44000	U	44000	7900	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
2-Picoline	88000	U	88000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
p-Phenylenediamine	1100000	U *	1100000	480000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Pronamide	44000	U	44000	5600	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
<b>Pyrene</b>	<b>10000</b>		9000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Pyridine	44000	U	44000	27000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Safrole, Total	44000	U	44000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Sulfotep	44000	U	44000	8700	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
1,2,4,5-Tetrachlorobenzene	44000	U	44000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
2,3,4,6-Tetrachlorophenol	44000	U	44000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
Thionazin	44000	U	44000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
2-Toluidine	44000	U	44000	4400	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
1,2,4-Trichlorobenzene	44000	U	44000	6200	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
2,4,5-Trichlorophenol	44000	U	44000	10000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
2,4,6-Trichlorophenol	44000	U	44000	11000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
1,3,5-Trinitrobenzene	88000	U	88000	23000	ug/Kg	o	01/10/13 17:58	01/13/13 15:27	100
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2-Fluorobiphenyl	0	D	11 - 130				01/10/13 17:58	01/13/13 15:27	100
2-Fluorophenol (Surr)	0	D	10 - 130				01/10/13 17:58	01/13/13 15:27	100
Nitrobenzene-d5 (Surr)	0	D	18 - 130				01/10/13 17:58	01/13/13 15:27	100
Phenol-d5 (Surr)	0	D	10 - 130				01/10/13 17:58	01/13/13 15:27	100
Terphenyl-d14 (Surr)	0	D	27 - 130				01/10/13 17:58	01/13/13 15:27	100
2,4,6-Tribromophenol (Surr)	0	D	24 - 130				01/10/13 17:58	01/13/13 15:27	100

**Method: 8081A\_8082 - Organochlorine Pesticides & PCBs (GC)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	23	U	23	6.0	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
alpha-BHC	23	U	23	1.5	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
beta-BHC	23	U	23	1.5	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Chlordane (technical)	230	U	230	39	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Chlorobenzilate	230	U	230	230	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: 680-86389-1**

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/10/13 09:46

Percent Solids: 74.6

## Method: 8081A\_8082 - Organochlorine Pesticides & PCBs (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	23	U	23	3.2	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
4,4'-DDE	23	U	23	2.5	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
4,4'-DDT	23	U	23	3.1	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
delta-BHC	23	U	23	1.7	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Dieldrin	23	U	23	3.7	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Endosulfan I	23	U	23	2.0	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Endosulfan II	23	U	23	3.1	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Endosulfan sulfate	23	U	23	3.2	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Endrin	23	U	23	9.7	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Endrin aldehyde	23	U	23	4.0	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
gamma-BHC (Lindane)	23	U	23	1.5	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Heptachlor	23	U	23	1.1	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Heptachlor epoxide	23	U	23	1.9	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Isodrin	44	U	44	44	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Kepone	2300	U	2300	2300	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Methoxychlor	23	U	23	4.7	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
PCB-1016	440	U	440	39	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
PCB-1221	890	U	890	64	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
PCB-1232	440	U	440	44	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
PCB-1242	440	U	440	37	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
<b>PCB-1248</b>	<b>22000</b>	<b>p</b>	1800	380	ug/Kg	o	01/11/13 16:57	01/15/13 17:09	40
PCB-1254	440	U	440	31	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
PCB-1260	440	U	440	89	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
<b>Polychlorinated biphenyls, Total</b>	<b>13000</b>	<b>p</b>	440	23	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10
Toxaphene	2300	U	2300	800	ug/Kg	o	01/11/13 16:57	01/15/13 06:37	10

## Surrogate

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	0	D	54 - 133	01/11/13 16:57	01/15/13 06:37	10
DCB Decachlorobiphenyl	0	D	54 - 133	01/11/13 16:57	01/15/13 06:37	10
Tetrachloro-m-xylene	0	D	46 - 130	01/11/13 16:57	01/15/13 06:37	10
Tetrachloro-m-xylene	0	D	46 - 130	01/11/13 16:57	01/15/13 06:37	10

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	110	U	110	21	ug/Kg	o	01/10/13 11:28	01/12/13 12:57	10
2,4,5-T	110	U	110	31	ug/Kg	o	01/10/13 11:28	01/12/13 12:57	10
2,4-D	110	U	110	66	ug/Kg	o	01/10/13 11:28	01/12/13 12:57	10

## Surrogate

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	0	D	35 - 137	01/10/13 11:28	01/12/13 12:57	10
DCAA	0	D	35 - 137	01/10/13 11:28	01/12/13 12:57	10

## Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.3	U	1.3	0.64	mg/Kg	o	01/14/13 09:27	01/14/13 20:07	1
<b>Arsenic</b>	<b>4.5</b>		0.32	0.13	mg/Kg	o	01/14/13 09:27	01/14/13 20:07	1
Barium	53		0.64	0.16	mg/Kg	o	01/14/13 09:27	01/14/13 20:07	1
Beryllium	0.16		0.064	0.032	mg/Kg	o	01/14/13 09:27	01/14/13 20:07	1
Cadmium	0.68		0.064	0.015	mg/Kg	o	01/14/13 09:27	01/14/13 20:07	1
Chromium	40		0.64	0.32	mg/Kg	o	01/14/13 09:27	01/14/13 20:07	1

TestAmerica Savannah

# Client Sample Results

Client: Ashland Inc.

TestAmerica Job ID: 680-86389-1

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

## Client Sample ID: RB-1046-0109

## Lab Sample ID: 680-86389-1

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/10/13 09:46

Percent Solids: 74.6

### Method: 6020 - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	240		0.064	0.019	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Copper	61		0.64	0.26	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Lead	60		0.26	0.13	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Nickel	97		0.64	0.32	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Selenium	0.64	U	0.64	0.32	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Silver	0.090	J	0.13	0.064	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Thallium	0.044	J	0.13	0.032	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Vanadium	15		0.64	0.35	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1
Zinc	340		2.6	0.70	mg/Kg	⊗	01/14/13 09:27	01/14/13 20:07	1

### Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.57		0.025	0.010	mg/Kg	⊗	01/14/13 15:14	01/16/13 14:54	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Amenable	0.50	U	0.50	0.50	mg/Kg		01/18/13 07:50	01/18/13 12:29	1
Cyanide, Total	11		10	10	mg/Kg		01/18/13 07:50	01/18/13 12:44	20
Sulfide	80	U	80	80	mg/Kg	⊗	01/17/13 09:04	01/17/13 09:04	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	25		0.010	0.010	%			01/10/13 11:31	1

### General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	27	U	27	5.4	mg/Kg	⊗		01/16/13 00:51	5

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 680-263264/7**

**Matrix: Solid**

**Analysis Batch: 263264**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
Acetone	2000	U	2000		2000	440	ug/Kg			01/18/13 13:16	40
Acetonitrile	8000	U	8000		8000	1600	ug/Kg			01/18/13 13:16	40
Acrolein	4000	U	4000		4000	960	ug/Kg			01/18/13 13:16	40
Acrylonitrile	4000	U	4000		4000	1400	ug/Kg			01/18/13 13:16	40
Benzene	200	U	200		200	29	ug/Kg			01/18/13 13:16	40
Dichlorobromomethane	200	U	200		200	39	ug/Kg			01/18/13 13:16	40
Bromoform	200	U	200		200	60	ug/Kg			01/18/13 13:16	40
Bromomethane	200	U	200		200	60	ug/Kg			01/18/13 13:16	40
2-Butanone (MEK)	1000	U	1000		1000	96	ug/Kg			01/18/13 13:16	40
Carbon disulfide	200	U	200		200	44	ug/Kg			01/18/13 13:16	40
Carbon tetrachloride	200	U	200		200	33	ug/Kg			01/18/13 13:16	40
Chlorobenzene	200	U	200		200	38	ug/Kg			01/18/13 13:16	40
Chloroethane	200	U	200		200	110	ug/Kg			01/18/13 13:16	40
Chloroform	200	U	200		200	44	ug/Kg			01/18/13 13:16	40
Chloromethane	200	U	200		200	40	ug/Kg			01/18/13 13:16	40
2-Chloro-1,3-butadiene	200	U	200		200	84	ug/Kg			01/18/13 13:16	40
3-Chloro-1-propene	200	U	200		200	88	ug/Kg			01/18/13 13:16	40
Chlorodibromomethane	200	U	200		200	68	ug/Kg			01/18/13 13:16	40
1,2-Dibromo-3-Chloropropane	400	U	400		400	180	ug/Kg			01/18/13 13:16	40
Ethylene Dibromide	200	U	200		200	60	ug/Kg			01/18/13 13:16	40
Dibromomethane	200	U	200		200	68	ug/Kg			01/18/13 13:16	40
trans-1,4-Dichloro-2-butene	400	U	400		400	120	ug/Kg			01/18/13 13:16	40
Dichlorodifluoromethane	200	U	200		200	38	ug/Kg			01/18/13 13:16	40
1,1-Dichloroethane	200	U	200		200	44	ug/Kg			01/18/13 13:16	40
1,2-Dichloroethane	200	U	200		200	44	ug/Kg			01/18/13 13:16	40
1,1-Dichloroethene	200	U	200		200	60	ug/Kg			01/18/13 13:16	40
trans-1,2-Dichloroethene	200	U	200		200	25	ug/Kg			01/18/13 13:16	40
1,2-Dichloropropane	200	U	200		200	34	ug/Kg			01/18/13 13:16	40
cis-1,3-Dichloropropene	200	U	200		200	33	ug/Kg			01/18/13 13:16	40
trans-1,3-Dichloropropene	200	U	200		200	35	ug/Kg			01/18/13 13:16	40
Ethylbenzene	200	U	200		200	52	ug/Kg			01/18/13 13:16	40
Ethyl methacrylate	200	U	200		200	140	ug/Kg			01/18/13 13:16	40
2-Hexanone	1000	U	1000		1000	130	ug/Kg			01/18/13 13:16	40
Iodomethane	200	U	200		200	72	ug/Kg			01/18/13 13:16	40
Isobutyl alcohol	8000	U	8000		8000	2100	ug/Kg			01/18/13 13:16	40
Methacrylonitrile	4000	U	4000		4000	920	ug/Kg			01/18/13 13:16	40
Methylene Chloride	200	U	200		200	39	ug/Kg			01/18/13 13:16	40
Methyl methacrylate	400	U	400		400	180	ug/Kg			01/18/13 13:16	40
4-Methyl-2-pentanone (MIBK)	1000	U	1000		1000	170	ug/Kg			01/18/13 13:16	40
Pentachloroethane	1000	U	1000		1000	250	ug/Kg			01/18/13 13:16	40
Propionitrile	4000	U	4000		4000	1000	ug/Kg			01/18/13 13:16	40
Styrene	200	U	200		200	37	ug/Kg			01/18/13 13:16	40
1,1,1,2-Tetrachloroethane	200	U	200		200	96	ug/Kg			01/18/13 13:16	40
1,1,2,2-Tetrachloroethane	200	U	200		200	64	ug/Kg			01/18/13 13:16	40
Tetrachloroethene	200	U	200		200	76	ug/Kg			01/18/13 13:16	40
Toluene	200	U	200		200	34	ug/Kg			01/18/13 13:16	40
1,1,1-Trichloroethane	200	U	200		200	24	ug/Kg			01/18/13 13:16	40
1,1,2-Trichloroethane	200	U	200		200	52	ug/Kg			01/18/13 13:16	40

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# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 680-263264/7**

**Matrix: Solid**

**Analysis Batch: 263264**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Trichloroethene	200	U	200	52	ug/Kg			01/18/13 13:16	40
Trichlorofluoromethane	200	U	200	48	ug/Kg			01/18/13 13:16	40
1,2,3-Trichloropropane	200	U	200	96	ug/Kg			01/18/13 13:16	40
Vinyl acetate	400	U	400	100	ug/Kg			01/18/13 13:16	40
Vinyl chloride	200	U	200	60	ug/Kg			01/18/13 13:16	40
Xylenes, Total	400	U	400	44	ug/Kg			01/18/13 13:16	40

**MB MB**

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene	90		65 - 130		01/18/13 13:16	40
Dibromofluoromethane	94		65 - 130		01/18/13 13:16	40
Toluene-d8 (Surf)	89		65 - 130		01/18/13 13:16	40

**Lab Sample ID: LCS 680-263264/4**

**Matrix: Solid**

**Analysis Batch: 263264**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS			D	%Rec	Limits
		Result	Qualifier	Unit			
Acetone	5000	4400		ug/Kg		88	54 - 139
Benzene	2500	2430		ug/Kg		97	76 - 120
Dichlorobromomethane	2500	2370		ug/Kg		95	72 - 131
Bromoform	2500	2180		ug/Kg		87	64 - 150
Bromomethane	2500	1910		ug/Kg		76	10 - 174
2-Butanone (MEK)	5000	4750		ug/Kg		95	66 - 123
Carbon disulfide	2500	2490		ug/Kg		100	74 - 125
Carbon tetrachloride	2500	2300		ug/Kg		92	67 - 140
Chlorobenzene	2500	2520		ug/Kg		101	80 - 120
Chloroethane	2500	2820		ug/Kg		113	10 - 176
Chloroform	2500	2630		ug/Kg		105	80 - 121
Chloromethane	2500	3030		ug/Kg		121	48 - 146
Chlorodibromomethane	2500	2290		ug/Kg		92	77 - 132
1,2-Dibromo-3-Chloropropane	2500	2060		ug/Kg		82	49 - 152
Ethylene Dibromide	2500	2500		ug/Kg		100	72 - 129
Dibromomethane	2500	2400		ug/Kg		96	73 - 127
Dichlorodifluoromethane	2500	2440		ug/Kg		98	72 - 134
1,1-Dichloroethane	2500	2690		ug/Kg		108	80 - 120
1,2-Dichloroethane	2500	2090		ug/Kg		83	61 - 140
1,1-Dichloroethene	2500	2600		ug/Kg		104	64 - 138
trans-1,2-Dichloroethene	2500	2580		ug/Kg		103	79 - 120
1,2-Dichloropropane	2500	2490		ug/Kg		100	73 - 121
cis-1,3-Dichloropropene	2500	2450		ug/Kg		98	74 - 125
trans-1,3-Dichloropropene	2500	2330		ug/Kg		93	69 - 133
Ethylbenzene	2500	2410		ug/Kg		96	78 - 121
2-Hexanone	5000	3990		ug/Kg		80	60 - 126
Methylene Chloride	2500	2680		ug/Kg		107	80 - 120
4-Methyl-2-pentanone (MIBK)	5000	4480		ug/Kg		90	59 - 127
Styrene	2500	2550		ug/Kg		102	78 - 123
1,1,1,2-Tetrachloroethane	2500	2340		ug/Kg		93	80 - 129
1,1,2,2-Tetrachloroethane	2500	2170		ug/Kg		87	70 - 123

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 680-263264/4**

**Matrix: Solid**

**Analysis Batch: 263264**

Analyte	Spike	LCS			D	%Rec	%Rec.
	Added	Result	Qualifier	Unit			
Tetrachloroethene	2500	2450		ug/Kg	98	77 - 130	
Toluene	2500	2440		ug/Kg	98	73 - 122	
1,1,1-Trichloroethane	2500	2180		ug/Kg	87	73 - 132	
1,1,2-Trichloroethane	2500	2450		ug/Kg	98	72 - 124	
Trichloroethylene	2500	2230		ug/Kg	89	78 - 125	
Trichlorofluoromethane	2500	2440		ug/Kg	98	60 - 148	
1,2,3-Trichloropropane	2500	2090		ug/Kg	84	67 - 132	
Vinyl acetate	5000	4950		ug/Kg	99	10 - 200	
Vinyl chloride	2500	2920		ug/Kg	117	65 - 133	
Xylenes, Total	7500	7520		ug/Kg	100	79 - 121	
<b>Surrogate</b>		<b>LCS</b>	<b>LCS</b>				
		<b>%Recovery</b>	<b>Qualifier</b>				
4-Bromofluorobenzene		97		65 - 130			
Dibromofluoromethane		109		65 - 130			
Toluene-d8 (Surrogate)		98		65 - 130			

**Lab Sample ID: LCSD 680-263264/5**

**Matrix: Solid**

**Analysis Batch: 263264**

Analyte	Spike	LCSD			D	%Rec	%Rec.	RPD	RPD
	Added	Result	Qualifier	Unit					
Acetone	5000	4510		ug/Kg	90	54 - 139		2	50
Benzene	2500	2530		ug/Kg	101	76 - 120		4	50
Dichlorobromomethane	2500	2410		ug/Kg	96	72 - 131		2	50
Bromoform	2500	2250		ug/Kg	90	64 - 150		3	50
Bromomethane	2500	1690		ug/Kg	68	10 - 174		12	50
2-Butanone (MEK)	5000	4560		ug/Kg	91	66 - 123		4	50
Carbon disulfide	2500	2350		ug/Kg	94	74 - 125		6	50
Carbon tetrachloride	2500	2270		ug/Kg	91	67 - 140		1	50
Chlorobenzene	2500	2630		ug/Kg	105	80 - 120		4	50
Chloroethane	2500	2750		ug/Kg	110	10 - 176		3	50
Chloroform	2500	2510		ug/Kg	100	80 - 121		5	50
Chloromethane	2500	2920		ug/Kg	117	48 - 146		3	50
Chlorodibromomethane	2500	2390		ug/Kg	96	77 - 132		4	50
1,2-Dibromo-3-Chloropropane	2500	1920		ug/Kg	77	49 - 152		7	50
Ethylene Dibromide	2500	2530		ug/Kg	101	72 - 129		1	50
Dibromomethane	2500	2500		ug/Kg	100	73 - 127		4	50
Dichlorodifluoromethane	2500	2350		ug/Kg	94	72 - 134		4	50
1,1-Dichloroethane	2500	2540		ug/Kg	102	80 - 120		6	50
1,2-Dichloroethane	2500	2160		ug/Kg	86	61 - 140		3	50
1,1-Dichloroethylene	2500	2480		ug/Kg	99	64 - 138		5	50
trans-1,2-Dichloroethene	2500	2490		ug/Kg	100	79 - 120		4	50
1,2-Dichloropropane	2500	2530		ug/Kg	101	73 - 121		2	50
cis-1,3-Dichloropropene	2500	2570		ug/Kg	103	74 - 125		5	50
trans-1,3-Dichloropropene	2500	2410		ug/Kg	96	69 - 133		3	50
Ethylbenzene	2500	2550		ug/Kg	102	78 - 121		6	50
2-Hexanone	5000	4150		ug/Kg	83	60 - 126		4	50
Methylene Chloride	2500	2600		ug/Kg	104	80 - 120		3	50

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-263264/5

Matrix: Solid

Analysis Batch: 263264

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec. %Rec	Limits	RPD RPD	Limit
4-Methyl-2-pentanone (MIBK)	5000	4520		ug/Kg		90	59 - 127	1	50
Styrene	2500	2600		ug/Kg		104	78 - 123	2	50
1,1,1,2-Tetrachloroethane	2500	2430		ug/Kg		97	80 - 129	4	50
1,1,2,2-Tetrachloroethane	2500	2330		ug/Kg		93	70 - 123	7	50
Tetrachloroethene	2500	2700		ug/Kg		108	77 - 130	10	50
Toluene	2500	2610		ug/Kg		104	73 - 122	7	50
1,1,1-Trichloroethane	2500	2290		ug/Kg		92	73 - 132	5	50
1,1,2-Trichloroethane	2500	2530		ug/Kg		101	72 - 124	3	50
Trichloroethene	2500	2240		ug/Kg		90	78 - 125	0	50
Trichlorofluoromethane	2500	2250		ug/Kg		90	60 - 148	8	50
1,2,3-Trichloropropane	2500	2300		ug/Kg		92	67 - 132	10	50
Vinyl acetate	5000	4720		ug/Kg		94	10 - 200	5	50
Vinyl chloride	2500	2850		ug/Kg		114	65 - 133	3	50
Xylenes, Total	7500	7920		ug/Kg		106	79 - 121	5	50
<hr/>									
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene	103		65 - 130						
Dibromofluoromethane	107		65 - 130						
Toluene-d8 (Surr)	101		65 - 130						

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 680-262348/21-A

Matrix: Solid

Analysis Batch: 262622

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 262348

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Acenaphthylene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Anthracene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Benzo[a]anthracene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Benzo[a]pyrene	6.7	U	6.7	1.2	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Benzo[b]fluoranthene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Benzo[g,h,i]perylene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Benzo[k]fluoranthene	6.7	U	6.7	2.0	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Chrysene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Dibenz(a,h)anthracene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Fluoranthene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Fluorene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Indeno[1,2,3-cd]pyrene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
2-Methylnaphthalene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Naphthalene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Phenanthrene	6.7	U	6.7	2.4	ug/Kg		01/10/13 17:58	01/11/13 11:55	1
Pyrene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/11/13 11:55	1

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# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: MB 680-262348/21-A**

**Matrix: Solid**

**Analysis Batch: 262664**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acenaphthene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Acenaphthylene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Acetophenone	33	U	33	6.8	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2-Acetylaminofluorene	33	U	33	33	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
alpha,alpha-Dimethyl phenethylamine	6700	U	6700	330	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
4-Aminobiphenyl	66	U	66	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Aniline	66	U	66	8.2	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Anthracene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Aramite, Total	66	U	66	4.8	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Benzo[a]anthracene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Benzo[a]pyrene	6.7	U	6.7	1.2	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Benzo[b]fluoranthene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Benzo[g,h,i]perylene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Benzo[k]fluoranthene	6.7	U	6.7	2.0	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Benzyl alcohol	33	U	33	6.1	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
1,1'-Biphenyl	33	U	33	7.2	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Bis(2-chloroethoxy)methane	33	U	33	6.5	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Bis(2-chloroethyl)ether	33	U	33	6.5	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
bis (2-chloroisopropyl) ether	33	U	33	7.2	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Bis(2-ethylhexyl) phthalate	66	U	66	6.0	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
4-Bromophenyl phenyl ether	33	U	33	6.9	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Butyl benzyl phthalate	33	U	33	5.5	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
4-Chloroaniline	66	U	66	5.2	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
4-Chloro-3-methylphenol	33	U	33	7.0	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2-Chloronaphthalene	33	U	33	6.0	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2-Chlorophenol	33	U	33	5.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
4-Chlorophenyl phenyl ether	33	U	33	6.4	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Chrysene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Diallate	33	U	33	5.6	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Dibenz(a,h)anthracene	6.7	U	6.7	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Dibenzofuran	33	U	33	6.7	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
1,2-Dichlorobenzene	33	U	33	8.6	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
1,3-Dichlorobenzene	33	U	33	5.6	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
1,4-Dichlorobenzene	33	U	33	5.2	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
3,3'-Dichlorobenzidine	66	U	66	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2,4-Dichlorophenol	33	U	33	7.2	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2,6-Dichlorophenol	33	U	33	3.3	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Diethyl phthalate	33	U	33	7.4	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Dimethoate	33	U	33	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
7,12-Dimethylbenz(a)anthracene	33	U	33	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
3,3'-Dimethylbenzidine	66	U	66	66	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2,4-Dimethylphenol	66	U	66	7.6	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Dimethyl phthalate	33	U	33	7.5	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
Di-n-butyl phthalate	170	U	170	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
1,3-Dinitrobenzene	33	U	33	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
4,6-Dinitro-2-methylphenol	170	U	170	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2,4-Dinitrophenol	330	U	330	17	ug/Kg		01/10/13 17:58	01/13/13 14:12	1
2,4-Dinitrotoluene	33	U	33	7.5	ug/Kg		01/10/13 17:58	01/13/13 14:12	1

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: MB 680-262348/21-A

Matrix: Solid

Analysis Batch: 262664

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 262348

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,6-Dinitrotoluene	33	U	33	7.9	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Di-n-octyl phthalate	33	U	33	3.6	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Dinoseb	66	U	66	6.2	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
1,4-Dioxane	33	U	33	3.4	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Diphenyl oxide	15.5	J	33	5.4	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Disulfoton	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Ethyl methanesulfonate	66	U	66	7.8	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Ethyl Parathion	33	U	33	33	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Famphur	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Fluoranthene	6.7	U	6.7	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Fluorene	6.7	U	6.7	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Hexachlorobenzene	33	U	33	7.6	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Hexachlorobutadiene	33	U	33	6.8	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Hexachlorocyclopentadiene	66	U	66	3.7	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Hexachloroethane	33	U	33	5.8	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Hexachlorophene	17000	U	17000	2400	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Hexachloropropene	33	U	33	5.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Indeno[1,2,3-cd]pyrene	6.7	U	6.7	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Isophorone	33	U	33	7.0	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Isosafrole	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Methapyrilene	6700	U	6700	33	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
3-Methylcholanthrene	33	U	33	33	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Methyl methanesulfonate	33	U	33	3.8	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2-Methylnaphthalene	6.7	U	6.7	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Methyl parathion	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2-Methylphenol	33	U	33	6.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
3 & 4 Methylphenol	33	U	33	7.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Naphthalene	6.7	U	6.7	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
1,4-Naphthoquinone	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
1-Naphthylamine	66	U	66	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2-Naphthylamine	66	U	66	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2-Nitroaniline	170	U	170	7.0	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
3-Nitroaniline	170	U	170	6.7	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
4-Nitroaniline	170	U	170	8.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Nitrobenzene	33	U	33	6.6	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2-Nitrophenol	33	U	33	5.8	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
4-Nitrophenol	170	U	170	73	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
4-Nitroquinoline-1-oxide	330	U	330	42	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitro-o-toluidine	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosodiethylamine	66	U	66	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosodimethylamine	33	U	33	19	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosodi-n-butylamine	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosodi-n-propylamine	33	U	33	7.5	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosodiphenylamine	33	U	33	6.1	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosomethylmethylethylamine	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosomorpholine	33	U	33	4.5	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosopiperidine	33	U	33	3.4	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
N-Nitrosopyrrolidine	33	U	33	3.6	ug/Kg	01/10/13 17:58	01/13/13 14:12		1

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

TestAmerica Job ID: 680-86389-1

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: MB 680-262348/21-A**

**Matrix: Solid**

**Analysis Batch: 262664**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
o,o',o"-Triethylphosphorothioate	66	U	66	4.4	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
p-Dimethylamino azobenzene	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Pentachlorobenzene	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Pentachloronitrobenzene	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Pentachlorophenol	170	U	170	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Phenacetin	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Phenanthrene	6.7	U	6.7	2.4	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Phenol	33	U	33	6.5	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Phorate	33	U	33	5.9	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2-Picoline	66	U	66	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
p-Phenylenediamine	830	U	830	360	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Pronamide	33	U	33	4.2	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Pyrene	6.7	U	6.7	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Pyridine	33	U	33	20	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Safrole, Total	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Sulfotep	33	U	33	6.5	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
1,2,4,5-Tetrachlorobenzene	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2,3,4,6-Tetrachlorophenol	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
Thionazin	33	U	33	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2-Toluidine	33	U	33	3.3	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
1,2,4-Trichlorobenzene	33	U	33	4.6	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2,4,5-Trichlorophenol	33	U	33	7.6	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
2,4,6-Trichlorophenol	33	U	33	7.9	ug/Kg	01/10/13 17:58	01/13/13 14:12		1
1,3,5-Trinitrobenzene	66	U	66	17	ug/Kg	01/10/13 17:58	01/13/13 14:12		1

**MB MB**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	64		11 - 130	01/10/13 17:58	01/13/13 14:12	1
2-Fluorophenol (Surr)	68		10 - 130	01/10/13 17:58	01/13/13 14:12	1
Nitrobenzene-d5 (Surr)	62		18 - 130	01/10/13 17:58	01/13/13 14:12	1
Phenol-d5 (Surr)	65		10 - 130	01/10/13 17:58	01/13/13 14:12	1
Terphenyl-d14 (Surr)	84		27 - 130	01/10/13 17:58	01/13/13 14:12	1
2,4,6-Tribromophenol (Surr)	37		24 - 130	01/10/13 17:58	01/13/13 14:12	1

**Lab Sample ID: LCS 680-262348/22-A**

**Matrix: Solid**

**Analysis Batch: 262622**

Analyte	Spike		LCS	LCS	%Rec.			
	Added	Result			Unit	D	%Rec	Limits
Acenaphthene	332	224			ug/Kg	68	13 - 130	
Acenaphthylene	332	227			ug/Kg	69	10 - 130	
Anthracene	332	236			ug/Kg	71	18 - 130	
Benz[a]anthracene	332	259			ug/Kg	78	16 - 130	
Benz[a]pyrene	332	272			ug/Kg	82	18 - 139	
Benz[b]fluoranthene	332	270			ug/Kg	81	18 - 130	
Benz[g,h,i]perylene	332	217			ug/Kg	66	21 - 130	
Benz[k]fluoranthene	332	245			ug/Kg	74	22 - 130	
Chrysene	332	238			ug/Kg	72	12 - 130	
Dibenz(a,h)anthracene	332	221			ug/Kg	67	17 - 130	

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262348**

# QC Sample Results

Client: Ashland Inc.

TestAmerica Job ID: 680-86389-1

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: LCS 680-262348/22-A**

**Matrix: Solid**

**Analysis Batch: 262622**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits
	Added	Result	Qualifier				
Fluoranthene	332	247		ug/Kg		74	14 - 130
Fluorene	332	241		ug/Kg		73	10 - 130
Indeno[1,2,3-cd]pyrene	332	205		ug/Kg		62	11 - 130
2-Methylnaphthalene	332	227		ug/Kg		68	20 - 130
Naphthalene	332	209		ug/Kg		63	10 - 130
Phenanthrene	332	231		ug/Kg		70	18 - 130
Pyrene	332	243		ug/Kg		73	11 - 136

**Lab Sample ID: LCS 680-262348/22-A**

**Matrix: Solid**

**Analysis Batch: 262664**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits
	Added	Result	Qualifier				
Acenaphthene	332	236		ug/Kg		71	13 - 130
Acenaphthylene	332	246		ug/Kg		74	10 - 130
Acetophenone	332	188		ug/Kg		57	14 - 130
Aniline	332	113		ug/Kg		34	10 - 130
Anthracene	332	244		ug/Kg		74	18 - 130
Benzo[a]anthracene	332	282		ug/Kg		85	16 - 130
Benzo[a]pyrene	332	313		ug/Kg		94	18 - 139
Benzo[b]fluoranthene	332	295		ug/Kg		89	18 - 130
Benzo[g,h,i]perylene	332	275		ug/Kg		83	21 - 130
Benzo[k]fluoranthene	332	277		ug/Kg		83	22 - 130
Benzyl alcohol	332	233		ug/Kg		70	10 - 130
1,1'-Biphenyl	332	220		ug/Kg		66	10 - 130
Bis(2-chloroethoxy)methane	332	243		ug/Kg		73	15 - 130
Bis(2-chloroethyl)ether	332	217		ug/Kg		65	11 - 130
bis (2-chloroisopropyl) ether	332	223		ug/Kg		67	10 - 130
Bis(2-ethylhexyl) phthalate	332	305		ug/Kg		92	29 - 130
4-Bromophenyl phenyl ether	332	256		ug/Kg		77	13 - 130
Butyl benzyl phthalate	332	307		ug/Kg		92	30 - 130
4-Chloroaniline	332	140		ug/Kg		42	10 - 130
4-Chloro-3-methylphenol	332	250		ug/Kg		75	18 - 130
2-Chloronaphthalene	332	220		ug/Kg		66	14 - 130
2-Chlorophenol	332	224		ug/Kg		68	10 - 130
4-Chlorophenyl phenyl ether	332	233		ug/Kg		70	15 - 130
Chrysene	332	262		ug/Kg		79	12 - 130
Dibenz(a,h)anthracene	332	301		ug/Kg		91	17 - 130
Dibenzofuran	332	236		ug/Kg		71	20 - 130
1,2-Dichlorobenzene	332	205		ug/Kg		62	12 - 130
1,3-Dichlorobenzene	332	198		ug/Kg		60	10 - 130
1,4-Dichlorobenzene	332	201		ug/Kg		61	10 - 130
3,3'-Dichlorobenzidine	332	236		ug/Kg		71	10 - 200
2,4-Dichlorophenol	332	243		ug/Kg		73	10 - 130
Diethyl phthalate	332	270		ug/Kg		81	24 - 130
2,4-Dimethylphenol	332	194		ug/Kg		58	10 - 134
Dimethyl phthalate	332	263		ug/Kg		79	20 - 130
Di-n-butyl phthalate	332	280		ug/Kg		84	10 - 130

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: LCS 680-262348/22-A**

**Matrix: Solid**

**Analysis Batch: 262664**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				
4,6-Dinitro-2-methylphenol	332	253		ug/Kg		76	14 - 130
2,4-Dinitrophenol	332	243	J	ug/Kg		73	10 - 130
2,4-Dinitrotoluene	332	247		ug/Kg		74	19 - 130
2,6-Dinitrotoluene	332	269		ug/Kg		81	18 - 130
Di-n-octyl phthalate	332	308		ug/Kg		93	10 - 130
1,4-Dioxane	332	50.1		ug/Kg		15	10 - 130
Fluoranthene	332	257		ug/Kg		77	14 - 130
Fluorene	332	235		ug/Kg		71	10 - 130
Hexachlorobenzene	332	233		ug/Kg		70	12 - 130
Hexachlorobutadiene	332	237		ug/Kg		72	10 - 130
Hexachlorocyclopentadiene	332	263		ug/Kg		79	10 - 130
Hexachloroethane	332	202		ug/Kg		61	10 - 130
Indeno[1,2,3-cd]pyrene	332	276		ug/Kg		83	11 - 130
Isophorone	332	198		ug/Kg		60	14 - 130
2-Methylnaphthalene	332	236		ug/Kg		71	20 - 130
2-Methylphenol	332	224		ug/Kg		67	10 - 130
3 & 4 Methylphenol	332	236		ug/Kg		71	10 - 130
Naphthalene	332	214		ug/Kg		64	10 - 130
2-Nitroaniline	332	247		ug/Kg		74	21 - 130
3-Nitroaniline	332	242		ug/Kg		73	10 - 134
4-Nitroaniline	332	301		ug/Kg		91	14 - 143
Nitrobenzene	332	214		ug/Kg		65	11 - 130
2-Nitrophenol	332	240		ug/Kg		72	10 - 130
4-Nitrophenol	332	204		ug/Kg		62	11 - 130
N-Nitrosodimethylamine	332	218		ug/Kg		66	10 - 130
N-Nitrosodi-n-propylamine	332	238		ug/Kg		72	16 - 130
N-Nitrosodiphenylamine	332	255		ug/Kg		77	22 - 130
Pentachlorophenol	332	261		ug/Kg		79	10 - 130
Phenanthrene	332	238		ug/Kg		72	18 - 130
Phenol	332	227		ug/Kg		68	10 - 130
Pyrene	332	263		ug/Kg		79	11 - 136
Pyridine	332	139		ug/Kg		42	10 - 130
1,2,4-Trichlorobenzene	332	217		ug/Kg		65	11 - 130
2,4,5-Trichlorophenol	332	264		ug/Kg		80	16 - 130
2,4,6-Trichlorophenol	332	258		ug/Kg		78	15 - 130

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl	65		11 - 130
2-Fluorophenol (Surr)	83		10 - 130
Nitrobenzene-d5 (Surr)	64		18 - 130
Phenol-d5 (Surr)	74		10 - 130
Terphenyl-d14 (Surr)	79		27 - 130
2,4,6-Tribromophenol (Surr)	80		24 - 130

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: LCS 680-262348/25-A**

**Matrix: Solid**

**Analysis Batch: 262664**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Acetylaminofluorene	333	239		ug/Kg		72	10 - 130
alpha,alpha-Dimethyl phenethylamine	333	6700	U	ug/Kg		20	10 - 130
4-Aminobiphenyl	333	73.4		ug/Kg		22	10 - 130
Aramite, Total	333	318		ug/Kg		96	10 - 130
Diallate	333	226		ug/Kg		68	10 - 130
2,6-Dichlorophenol	333	241		ug/Kg		72	10 - 130
Dimethoate	333	188		ug/Kg		56	10 - 130
7,12-Dimethylbenz(a)anthracene	333	260		ug/Kg		78	10 - 130
3,3'-Dimethylbenzidine	832	231		ug/Kg		28	10 - 130
1,3-Dinitrobenzene	333	227		ug/Kg		68	10 - 130
Dinoseb	333	219		ug/Kg		66	10 - 130
Diphenyl oxide	333	227		ug/Kg		68	10 - 130
Disulfoton	333	206		ug/Kg		62	10 - 130
Ethyl methanesulfonate	333	134		ug/Kg		40	10 - 130
Ethyl Parathion	333	303		ug/Kg		91	10 - 130
Famphur	333	50.3		ug/Kg		15	10 - 130
Hexachlorophene	1660	17000	U *	ug/Kg		2	10 - 130
Hexachloropropene	333	234		ug/Kg		70	10 - 130
Isosafrole	333	237		ug/Kg		71	10 - 130
Methapyrilene	1660	896	J	ug/Kg		54	10 - 130
3-Methylcholanthrene	333	260		ug/Kg		78	10 - 130
Methyl methanesulfonate	333	233		ug/Kg		70	10 - 130
Methyl parathion	333	247		ug/Kg		74	10 - 130
1,4-Naphthoquinone	333	138		ug/Kg		41	10 - 130
1-Naphthylamine	333	66.1		ug/Kg		20	10 - 130
2-Naphthylamine	333	72.9		ug/Kg		22	10 - 130
4-Nitroquinoline-1-oxide	333	370		ug/Kg		111	10 - 130
N-Nitro-o-toluidine	333	151		ug/Kg		45	10 - 130
N-Nitrosodiethylamine	333	214		ug/Kg		64	10 - 130
N-Nitrosodi-n-butylamine	333	239		ug/Kg		72	10 - 130
N-Nitrosomethylalkylamine	333	198		ug/Kg		59	10 - 130
N-Nitrosomorpholine	333	213		ug/Kg		64	10 - 130
N-Nitrosopiperidine	333	218		ug/Kg		65	10 - 130
N-Nitrosopyrrolidine	333	232		ug/Kg		70	10 - 130
o,o',o"-Triethylphosphorothioate	333	212		ug/Kg		64	10 - 130
p-Dimethylamino azobenzene	333	273		ug/Kg		82	10 - 130
Pentachlorobenzene	333	240		ug/Kg		72	10 - 130
Pentachloronitrobenzene	333	293		ug/Kg		88	10 - 130
Phenacetin	333	234		ug/Kg		70	10 - 130
Phorate	333	255		ug/Kg		77	10 - 130
2-Picoline	333	178		ug/Kg		54	10 - 130
p-Phenylenediamine	1660	830	U *	ug/Kg		4	10 - 130
Pronamide	333	259		ug/Kg		78	10 - 130
Safrole, Total	333	226		ug/Kg		68	10 - 130
Sulfotep	333	252		ug/Kg		76	10 - 130
1,2,4,5-Tetrachlorobenzene	333	225		ug/Kg		68	10 - 130
2,3,4,6-Tetrachlorophenol	333	317		ug/Kg		95	10 - 130

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# QC Sample Results

TestAmerica Job ID: 680-86389-1

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: LCS 680-262348/25-A**

**Matrix: Solid**

**Analysis Batch: 262664**

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.
		Result	Qualifier				
Thionazin	333	277		ug/Kg		83	10 - 130
2-Toluidine	333	92.7		ug/Kg		28	10 - 130
1,3,5-Trinitrobenzene	333	244		ug/Kg		73	10 - 130

Surrogate	LCS		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl	61		11 - 130
2-Fluorophenol (Surr)	75		10 - 130
Nitrobenzene-d5 (Surr)	58		18 - 130
Phenol-d5 (Surr)	67		10 - 130
Terphenyl-d14 (Surr)	79		27 - 130
2,4,6-Tribromophenol (Surr)	77		24 - 130

**Lab Sample ID: 680-86389-1 MS**

**Matrix: Solid**

**Analysis Batch: 262751**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				
2-Acetylaminofluorene	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
alpha,alpha-Dimethyl phenethylamine	9000000	U	441	8900000	U	ug/Kg	◊	NC	10 - 130
4-Aminobiphenyl	88000	U	441	87000	U	ug/Kg	◊	NC	10 - 130
Aramite, Total	88000	U	441	87000	U	ug/Kg	◊	NC	10 - 130
Diallate	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
2,6-Dichlorophenol	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Dimethoate	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
7,12-Dimethylbenz(a)anthracene	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
3,3'-Dimethylbenzidine	88000	U	1100	87000	U	ug/Kg	◊	NC	10 - 130
1,3-Dinitrobenzene	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Dinoseb	88000	U	441	87000	U	ug/Kg	◊	NC	10 - 130
Diphenyl oxide	890000	B	441	875000	4	ug/Kg	◊	-4299	10 - 130
Disulfoton	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Ethyl methanesulfonate	88000	U	441	87000	U	ug/Kg	◊	NC	10 - 130
Ethyl Parathion	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Famphur	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Hexachlorophene	23000000	U *	2200	22000000	U	ug/Kg	◊	NC	10 - 130
Hexachloropropene	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Isosafrole	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Methapyrilene	9000000	U	2200	8900000	U	ug/Kg	◊	NC	10 - 130
3-Methylcholanthrene	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Methyl methanesulfonate	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
Methyl parathion	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
1,4-Naphthoquinone	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
1-Naphthylamine	88000	U	441	87000	U	ug/Kg	◊	NC	10 - 130
2-Naphthylamine	88000	U	441	87000	U	ug/Kg	◊	NC	10 - 130
4-Nitroquinoline-1-oxide	440000	U	441	440000	U	ug/Kg	◊	NC	10 - 130
N-Nitro-o-toluidine	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130
N-Nitrosodiethylamine	88000	U	441	87000	U	ug/Kg	◊	NC	10 - 130
N-Nitrosodi-n-butylamine	44000	U	441	44000	U	ug/Kg	◊	NC	10 - 130

**Client Sample ID: RB-1046-0109**

**Prep Type: Total/NA**

**Prep Batch: 262348**

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: 680-86389-1 MS**

**Matrix: Solid**

**Analysis Batch: 262751**

**Client Sample ID: RB-1046-0109**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits	%Rec.
	Result	Qualifier	Added	Result	Qualifier					
N-Nitrosomethylamine	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
N-Nitrosomorpholine	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
N-Nitrosopiperidine	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
N-Nitrosopyrrolidine	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
o,o',o"-Triethylphosphorothioate	88000	U	441	87000	U	ug/Kg	⊗	NC	10 - 130	
p-Dimethylamino azobenzene	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
Pentachlorobenzene	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
Pentachloronitrobenzene	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
Phenacetin	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
Phorate	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
2-Picoline	88000	U	441	87000	U	ug/Kg	⊗	NC	10 - 130	
p-Phenylenediamine	1100000	U *	2200	1100000	U	ug/Kg	⊗	NC	10 - 130	
Pronamide	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
Safrole, Total	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
Sulfotep	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
1,2,4,5-Tetrachlorobenzene	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
2,3,4,6-Tetrachlorophenol	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
Thionazin	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
2-Toluidine	44000	U	441	44000	U	ug/Kg	⊗	NC	10 - 130	
1,3,5-Trinitrobenzene	88000	U	441	87000	U	ug/Kg	⊗	NC	10 - 130	
Surrogate	MS		MS		Limits					
	%Recovery	Qualifier								
2-Fluorobiphenyl	0	X			11 - 130					
2-Fluorophenol (Surr)	0	X			10 - 130					
Nitrobenzene-d5 (Surr)	0	X			18 - 130					
Phenol-d5 (Surr)	0	X			10 - 130					
Terphenyl-d14 (Surr)	0	X			27 - 130					
2,4,6-Tribromophenol (Surr)	0	X			24 - 130					

**Lab Sample ID: 680-86389-1 MSD**

**Matrix: Solid**

**Analysis Batch: 262664**

**Client Sample ID: RB-1046-0109**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
2-Acetylaminofluorene	44000	U	442	440	U F	ug/Kg	⊗	0	10 - 130	NC	50
alpha,alpha-Dimethylphenethylamine	9000000	U	442	89000	U	ug/Kg	⊗	NC	10 - 130	NC	50
4-Aminobiphenyl	88000	U	442	880	U F	ug/Kg	⊗	0	10 - 130	NC	50
Aramite, Total	88000	U	442	880	U F	ug/Kg	⊗	0	10 - 130	NC	50
Diallate	44000	U	442	440	U F	ug/Kg	⊗	0	10 - 130	NC	50
2,6-Dichlorophenol	44000	U	442	440	U F	ug/Kg	⊗	0	10 - 130	NC	50
Dimethoate	44000	U	442	440	U F	ug/Kg	⊗	0	10 - 130	NC	50
7,12-Dimethylbenz(a)anthracene	44000	U	442	440	U F	ug/Kg	⊗	0	10 - 130	NC	50
3,3'-Dimethylbenzidine	88000	U	1110	880	U F	ug/Kg	⊗	0	10 - 130	NC	50
1,3-Dinitrobenzene	44000	U	442	440	U F	ug/Kg	⊗	0	10 - 130	NC	50
Dinoseb	88000	U	442	880	U 4	ug/Kg	⊗	0	10 - 130	NC	50
Diphenyl oxide	890000	B	442	4590	4 F	ug/Kg	⊗	-2011	10 - 130	198	50

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# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

**Lab Sample ID: 680-86389-1 MSD**

**Matrix: Solid**

**Analysis Batch: 262664**

**Client Sample ID: RB-1046-0109**

**Prep Type: Total/NA**

**Prep Batch: 262348**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						
Disulfoton	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Ethyl methanesulfonate	88000	U	442	880	U F	ug/Kg	o	0	10 - 130	NC	50
Ethyl Parathion	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Famphur	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Hexachlorophene	23000000	U *	2210	230000	U	ug/Kg	o	NC	10 - 130	NC	50
Hexachloropropene	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Isosafrole	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Methapyrilene	9000000	U	2210	89000	U F	ug/Kg	o	0	10 - 130	NC	50
3-Methylcholanthrene	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Methyl methanesulfonate	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Methyl parathion	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
1,4-Naphthoquinone	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
1-Naphthylamine	88000	U	442	880	U F	ug/Kg	o	0	10 - 130	NC	50
2-Naphthylamine	88000	U	442	880	U F	ug/Kg	o	0	10 - 130	NC	50
4-Nitroquinoline-1-oxide	440000	U	442	4400	U	ug/Kg	o	NC	10 - 130	NC	50
N-Nitro-o-toluidine	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
N-Nitrosodiethylamine	88000	U	442	880	U F	ug/Kg	o	0	10 - 130	NC	50
N-Nitrosodi-n-butylamine	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
N-Nitrosomethylalkylamine	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
N-Nitrosomorpholine	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
N-Nitrosopiperidine	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
N-Nitrosopyrrolidine	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
o,o',o"-Triethylphosphorothioate	88000	U	442	880	U F	ug/Kg	o	0	10 - 130	NC	50
p-Dimethylamino azobenzene	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Pentachlorobenzene	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Pentachloronitrobenzene	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Phenacetin	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Phorate	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
2-Picoline	88000	U	442	880	U F	ug/Kg	o	0	10 - 130	NC	50
p-Phenylenediamine	1100000	U *	2210	11000	U	ug/Kg	o	NC	10 - 130	NC	50
Pronamide	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Safrole, Total	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Sulfotep	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
1,2,4,5-Tetrachlorobenzene	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
2,3,4,6-Tetrachlorophenol	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
Thioniazin	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
2-Toluidine	44000	U	442	440	U F	ug/Kg	o	0	10 - 130	NC	50
1,3,5-Trinitrobenzene	88000	U	442	880	U F	ug/Kg	o	0	10 - 130	NC	50
<b>MSD MSD</b>											
Surrogate	%Recovery	Qualifier		MSD	MSD	Limits					
2-Fluorobiphenyl	0	X		11	-	130					
2-Fluorophenol (Surr)	0	X		10	-	130					
Nitrobenzene-d5 (Surr)	0	D		18	-	130					
Phenol-d5 (Surr)	0	X		10	-	130					
Terphenyl-d14 (Surr)	0	X		27	-	130					
2,4,6-Tribromophenol (Surr)	0	X		24	-	130					

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8081A\_8082 - Organochlorine Pesticides & PCBs (GC)

**Lab Sample ID: MB 680-262352/15-A**

**Matrix: Solid**

**Analysis Batch: 262831**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 262352**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aldrin	1.7	U	1.7	0.44	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
alpha-BHC	1.7	U	1.7	0.11	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
beta-BHC	1.7	U	1.7	0.11	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Chlordane (technical)	17	U	17	2.8	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Chlorobenzilate	17	U	17	17	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
4,4'-DDD	1.7	U	1.7	0.23	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
4,4'-DDE	1.7	U	1.7	0.19	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
4,4'-DDT	1.7	U	1.7	0.22	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
delta-BHC	1.7	U	1.7	0.13	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Dieldrin	1.7	U	1.7	0.27	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Endosulfan I	1.7	U	1.7	0.15	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Endosulfan II	1.7	U	1.7	0.22	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Endosulfan sulfate	1.7	U	1.7	0.23	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Endrin	1.7	U	1.7	0.71	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Endrin aldehyde	1.7	U	1.7	0.29	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
gamma-BHC (Lindane)	1.7	U	1.7	0.11	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Heptachlor	1.7	U	1.7	0.081	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Heptachlor epoxide	1.7	U	1.7	0.14	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Isodrin	3.2	U	3.2	3.2	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Kepone	170	U	170	170	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Methoxychlor	1.7	U	1.7	0.34	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
PCB-1016	32	U	32	2.8	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
PCB-1221	65	U	65	4.7	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
PCB-1232	32	U	32	3.2	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
PCB-1242	32	U	32	2.7	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
PCB-1248	32	U	32	7.0	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
PCB-1254	32	U	32	2.2	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
PCB-1260	32	U	32	6.5	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Polychlorinated biphenyls, Total	32	U	32	1.7	ug/Kg		01/11/13 16:57	01/15/13 00:09	1
Toxaphene	170	U	170	58	ug/Kg		01/11/13 16:57	01/15/13 00:09	1

**MB MB**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	86		54 - 133	01/11/13 16:57	01/15/13 00:09	1
DCB Decachlorobiphenyl	87		54 - 133	01/11/13 16:57	01/15/13 00:09	1
Tetrachloro-m-xylene	93		46 - 130	01/11/13 16:57	01/15/13 00:09	1
Tetrachloro-m-xylene	94		46 - 130	01/11/13 16:57	01/15/13 00:09	1

**Lab Sample ID: LCS 680-262352/16-A**

**Matrix: Solid**

**Analysis Batch: 262831**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262352**

Analyte	Spike Added	LCS LCS			%Rec.		
		Result	Qualifier	Unit	D	%Rec	Limits
Aldrin	3.31	3.08		ug/Kg		93	47 - 130
alpha-BHC	3.31	3.10		ug/Kg		94	42 - 130
beta-BHC	3.31	3.34		ug/Kg		101	39 - 140
4,4'-DDD	3.31	3.51		ug/Kg		106	54 - 134
4,4'-DDE	3.31	3.04		ug/Kg		92	40 - 133
4,4'-DDT	3.31	2.43		ug/Kg		73	69 - 157

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8081A\_8082 - Organochlorine Pesticides & PCBs (GC) (Continued)

**Lab Sample ID:** LCS 680-262352/16-A

**Matrix:** Solid

**Analysis Batch:** 262831

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 262352

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier			%Rec	
delta-BHC	3.31	3.27		ug/Kg		99	36 - 156
Dieldrin	3.31	3.11		ug/Kg		94	59 - 130
Endosulfan I	3.31	2.99		ug/Kg		90	51 - 130
Endosulfan II	3.31	3.05		ug/Kg		92	46 - 130
Endosulfan sulfate	3.31	3.14		ug/Kg		95	57 - 130
Endrin	3.31	3.49		ug/Kg		105	62 - 136
Endrin aldehyde	3.31	3.12		ug/Kg		94	43 - 135
gamma-BHC (Lindane)	3.31	3.15		ug/Kg		95	44 - 130
Heptachlor	3.31	3.17		ug/Kg		96	48 - 146
Heptachlor epoxide	3.31	3.07		ug/Kg		93	51 - 130
Methoxychlor	3.31	2.58		ug/Kg		78	23 - 179
Surrogate	LCS	LCS	Limits	Unit	D	%Rec.	Limits
	%Recovery	Qualifier					
DCB Decachlorobiphenyl	82		54 - 133				
DCB Decachlorobiphenyl	83		54 - 133				
Tetrachloro-m-xylene	92		46 - 130				
Tetrachloro-m-xylene	92		46 - 130				

**Lab Sample ID:** LCS 680-262352/19-A

**Matrix:** Solid

**Analysis Batch:** 262831

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 262352

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier			%Rec	
PCB-1016	327	282		ug/Kg		86	64 - 130
PCB-1260	327	272		ug/Kg		83	69 - 130
Surrogate	LCS	LCS	Limits	Unit	D	%Rec.	Limits
	%Recovery	Qualifier					
DCB Decachlorobiphenyl	83		54 - 133				
DCB Decachlorobiphenyl	84		54 - 133				
Tetrachloro-m-xylene	91		46 - 130				
Tetrachloro-m-xylene	94		46 - 130				

## Method: 8151A - Herbicides (GC)

**Lab Sample ID:** MB 680-262210/4-A

**Matrix:** Solid

**Analysis Batch:** 262568

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 262210

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	8.3	U	8.3	1.6	ug/Kg		01/09/13 13:32	01/11/13 19:41	1
2,4,5-T	8.3	U	8.3	2.3	ug/Kg		01/09/13 13:32	01/11/13 19:41	1
2,4-D	8.3	U	8.3	5.0	ug/Kg		01/09/13 13:32	01/11/13 19:41	1
Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac			
	%Recovery	Qualifier							
DCAA	72		35 - 137	01/09/13 13:32	01/11/13 19:41	1			
DCAA	86		35 - 137	01/09/13 13:32	01/11/13 19:41	1			

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 8151A - Herbicides (GC) (Continued)

**Lab Sample ID: LCS 680-262210/5-A**

**Matrix: Solid**

**Analysis Batch: 262568**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262210**

Analyte	Spike Added	LCS			Unit	D	%Rec	Limits
		Result	Qualifier	LCS				
Silvex (2,4,5-TP)	65.9	47.1		ug/Kg		71	24 - 130	
2,4,5-T	65.9	44.6		ug/Kg		68	32 - 130	
2,4-D	65.9	57.1		ug/Kg		87	47 - 130	
<b>Surrogate</b>	<b>LCS</b>	<b>LCS</b>						
	<b>%Recovery</b>	<b>Qualifier</b>		<b>Limits</b>				
DCAA	76			35 - 137				
DCAA	98			35 - 137				

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 680-262620/1-A**

**Matrix: Solid**

**Analysis Batch: 262794**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 262620**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared		Analyzed	Dil Fac
							Prepared	Analyzed		
Antimony	0.97	U	0.97	0.49	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Arsenic	0.24	U	0.24	0.097	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Barium	0.49	U	0.49	0.12	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Beryllium	0.049	U	0.049	0.024	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Cadmium	0.049	U	0.049	0.012	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Chromium	0.49	U	0.49	0.24	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Cobalt	0.049	U	0.049	0.015	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Copper	0.49	U	0.49	0.19	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Lead	0.19	U	0.19	0.097	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Nickel	0.49	U	0.49	0.24	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Selenium	0.49	U	0.49	0.24	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Silver	0.097	U	0.097	0.049	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Thallium	0.097	U	0.097	0.024	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Vanadium	0.49	U	0.49	0.27	mg/Kg		01/14/13 09:27	01/14/13 19:07		1
Zinc	1.9	U	1.9	0.53	mg/Kg		01/14/13 09:27	01/14/13 19:07		1

**Lab Sample ID: LCS 680-262620/2-A**

**Matrix: Solid**

**Analysis Batch: 262794**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262620**

Analyte	Spike Added	LCS			Unit	D	%Rec	Limits
		Result	Qualifier	LCS				
Antimony	4.95	5.66		mg/Kg		114	75 - 125	
Arsenic	9.90	10.5		mg/Kg		106	75 - 125	
Barium	9.90	10.5		mg/Kg		106	75 - 125	
Beryllium	4.95	5.13		mg/Kg		104	75 - 125	
Cadmium	4.95	5.10		mg/Kg		103	75 - 125	
Chromium	9.90	10.6		mg/Kg		107	75 - 125	
Cobalt	4.95	5.08		mg/Kg		103	75 - 125	
Copper	9.90	10.6		mg/Kg		107	75 - 125	
Lead	4.95	5.38		mg/Kg		109	75 - 125	
Nickel	9.90	10.5		mg/Kg		106	75 - 125	
Selenium	9.90	9.70		mg/Kg		98	75 - 125	
Silver	4.95	5.18		mg/Kg		105	75 - 125	

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 6020 - Metals (ICP/MS) (Continued)

**Lab Sample ID: LCS 680-262620/2-A**

**Matrix: Solid**

**Analysis Batch: 262794**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 262620**

Analyte	Spike	LCS		Unit	D	%Rec	Limits
	Added	Result	Qualifier				
Thallium	3.96	4.22		mg/Kg		107	75 - 125
Vanadium	9.90	10.3		mg/Kg		104	75 - 125
Zinc	9.90	10.7		mg/Kg		108	75 - 125

**Lab Sample ID: 680-86389-1 MS**

**Matrix: Solid**

**Analysis Batch: 262794**

**Client Sample ID: RB-1046-0109**

**Prep Type: Total/NA**

**Prep Batch: 262620**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Antimony	1.3	U	6.51	4.76	F	mg/Kg	○	73	75 - 125
Arsenic	4.5		13.0	17.5		mg/Kg	○	100	75 - 125
Barium	53		13.0	61.0	4	mg/Kg	○	58	75 - 125
Beryllium	0.16		6.51	6.68		mg/Kg	○	100	75 - 125
Cadmium	0.68		6.51	6.58		mg/Kg	○	91	75 - 125
Chromium	40		13.0	39.1	F	mg/Kg	○	-8	75 - 125
Cobalt	240		6.51	257	4	mg/Kg	○	310	75 - 125
Copper	61		13.0	82.1	4	mg/Kg	○	163	75 - 125
Lead	60		6.51	45.3	4	mg/Kg	○	-222	75 - 125
Nickel	97		13.0	84.6	4	mg/Kg	○	-98	75 - 125
Selenium	0.64	U	13.0	12.5		mg/Kg	○	96	75 - 125
Silver	0.090	J	6.51	6.32		mg/Kg	○	96	75 - 125
Thallium	0.044	J	5.21	4.99		mg/Kg	○	95	75 - 125
Vanadium	15		13.0	26.7		mg/Kg	○	94	75 - 125
Zinc	340		13.0	252	4	mg/Kg	○	-695	75 - 125

**Lab Sample ID: 680-86389-1 MSD**

**Matrix: Solid**

**Analysis Batch: 262794**

**Client Sample ID: RB-1046-0109**

**Prep Type: Total/NA**

**Prep Batch: 262620**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Antimony	1.3	U	6.51	3.69	F	mg/Kg	○	57	75 - 125	25	20
Arsenic	4.5		13.0	17.2		mg/Kg	○	98	75 - 125	2	20
Barium	53		13.0	62.7	4	mg/Kg	○	71	75 - 125	3	20
Beryllium	0.16		6.51	6.72		mg/Kg	○	101	75 - 125	1	20
Cadmium	0.68		6.51	6.78		mg/Kg	○	94	75 - 125	3	20
Chromium	40		13.0	41.8	F	mg/Kg	○	13	75 - 125	7	20
Cobalt	240		6.51	213	4	mg/Kg	○	-357	75 - 125	18	20
Copper	61		13.0	55.9	4 F	mg/Kg	○	-38	75 - 125	38	20
Lead	60		6.51	55.3	4	mg/Kg	○	-68	75 - 125	20	20
Nickel	97		13.0	78.0	4	mg/Kg	○	-149	75 - 125	8	20
Selenium	0.64	U	13.0	12.0		mg/Kg	○	92	75 - 125	4	20
Silver	0.090	J	6.51	6.47		mg/Kg	○	98	75 - 125	2	20
Thallium	0.044	J	5.21	4.98		mg/Kg	○	95	75 - 125	0	20
Vanadium	15		13.0	28.6		mg/Kg	○	108	75 - 125	7	20
Zinc	340		13.0	242	4	mg/Kg	○	-774	75 - 125	4	20

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 7471A - Mercury (CVAA)

**Lab Sample ID:** MB 680-262707/1-A

**Matrix:** Solid

**Analysis Batch:** 263105

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 262707

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	0.018	U	0.018	0.0072	mg/Kg		01/14/13 15:14	01/16/13 14:37	1

**Lab Sample ID:** LCS 680-262707/2-A

**Matrix:** Solid

**Analysis Batch:** 263105

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 262707

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec.	Limits	Dil Fac
	Added								
Mercury	0.240		0.207		mg/Kg		86	80 - 120	

## Method: 9012A - Cyanide, Total and/or Amenable

**Lab Sample ID:** MB 680-263054/1-B

**Matrix:** Solid

**Analysis Batch:** 263263

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 263178

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cyanide, Amenable	0.50	U	0.50	0.50	mg/Kg		01/18/13 07:50	01/18/13 12:29	1

**Lab Sample ID:** MB 680-263054/1-B

**Matrix:** Solid

**Analysis Batch:** 263256

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 263178

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Cyanide, Total	0.50	U	0.50	0.50	mg/Kg		01/18/13 07:50	01/18/13 12:42	1

**Lab Sample ID:** LCS 680-263054/2-B

**Matrix:** Solid

**Analysis Batch:** 263256

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 263178

Analyte	Spike		LCS Result	LCS Qualifier	Unit	D	%Rec.	Limits	Dil Fac
	Added								
Cyanide, Total	2.00		2.02		mg/Kg		101	85 - 115	

**Lab Sample ID:** 680-86389-A-1-P MS ^20

**Matrix:** Solid

**Analysis Batch:** 263256

**Client Sample ID:** 680-86389-A-1-P MS ^20

**Prep Type:** Total/NA

**Prep Batch:** 263178

Analyte	Sample Sample		Spike	MS MS		Unit	D	%Rec.	Limits
	Result	Qualifier		Added					
Cyanide, Total	10		2.00	12.6	4	mg/Kg	110	85 - 115	

**Lab Sample ID:** 680-86389-A-1-Q MSD ^20

**Matrix:** Solid

**Analysis Batch:** 263256

**Client Sample ID:** 680-86389-A-1-Q MSD ^20

**Prep Type:** Total/NA

**Prep Batch:** 263178

Analyte	Sample Sample		Spike	MSD MSD		Unit	D	%Rec.	RPD
	Result	Qualifier		Added					
Cyanide, Total	10		2.00	12.2	4	mg/Kg	86	85 - 115	4

TestAmerica Savannah

# QC Sample Results

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Method: 9034 - Sulfide, Acid Soluble and Insoluble (Titrimetric)

**Lab Sample ID:** MB 680-263039/1-A

**Matrix:** Solid

**Analysis Batch:** 263133

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 263039

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfide	60	U	60	60	mg/Kg		01/17/13 09:04	01/17/13 09:04	1

**Lab Sample ID:** LCS 680-263039/2-A

**Matrix:** Solid

**Analysis Batch:** 263133

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 263039

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits	RPD	Limit
	Added	Result	Qualifier						
Sulfide	1270	640		mg/Kg		51	50 - 150		

**Lab Sample ID:** LCSD 680-263039/3-A

**Matrix:** Solid

**Analysis Batch:** 263133

**Client Sample ID:** Lab Control Sample Dup

**Prep Type:** Total/NA

**Prep Batch:** 263039

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec.	Limits	RPD	Limit
	Added	Result	Qualifier						
Sulfide	1270	640		mg/Kg		51	50 - 150	0	50

## Method: 9056 - Anions, Ion Chromatography

**Lab Sample ID:** MB 680-262857/1-A

**Matrix:** Solid

**Analysis Batch:** 262912

**Client Sample ID:** Method Blank

**Prep Type:** Soluble

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoride	20	U	20	4.0	mg/Kg			01/15/13 20:31	5

**Lab Sample ID:** LCS 680-262857/2-A

**Matrix:** Solid

**Analysis Batch:** 262912

**Client Sample ID:** Lab Control Sample

**Prep Type:** Soluble

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits	RPD	Limit
	Added	Result	Qualifier						
Fluoride	202	210		mg/Kg		104	75 - 125		

**Lab Sample ID:** LCSD 680-262857/3-A

**Matrix:** Solid

**Analysis Batch:** 262912

**Client Sample ID:** Lab Control Sample Dup

**Prep Type:** Soluble

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec.	Limits	RPD	Limit
	Added	Result	Qualifier						
Fluoride	196	213		mg/Kg		109	75 - 125	2	30

TestAmerica Savannah

# QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## GC/MS VOA

### Prep Batch: 262334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	5035	

### Analysis Batch: 263264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	8260B	
LCS 680-263264/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 680-263264/5	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 680-263264/7	Method Blank	Total/NA	Solid	8260B	

## GC/MS Semi VOA

### Prep Batch: 262348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	3546	
680-86389-1 MS	RB-1046-0109	Total/NA	Solid	3546	
680-86389-1 MSD	RB-1046-0109	Total/NA	Solid	3546	
LCS 680-262348/22-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 680-262348/25-A	Lab Control Sample	Total/NA	Solid	3546	
MB 680-262348/21-A	Method Blank	Total/NA	Solid	3546	

### Analysis Batch: 262622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-262348/22-A	Lab Control Sample	Total/NA	Solid	8270C LL	
MB 680-262348/21-A	Method Blank	Total/NA	Solid	8270C LL	

### Analysis Batch: 262664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	8270C LL	
680-86389-1 MSD	RB-1046-0109	Total/NA	Solid	8270C LL	
LCS 680-262348/22-A	Lab Control Sample	Total/NA	Solid	8270C LL	
LCS 680-262348/25-A	Lab Control Sample	Total/NA	Solid	8270C LL	
MB 680-262348/21-A	Method Blank	Total/NA	Solid	8270C LL	

### Analysis Batch: 262751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1 MS	RB-1046-0109	Total/NA	Solid	8270C LL	

## GC Semi VOA

### Prep Batch: 262210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	8151A	
LCS 680-262210/5-A	Lab Control Sample	Total/NA	Solid	8151A	
MB 680-262210/4-A	Method Blank	Total/NA	Solid	8151A	

### Prep Batch: 262352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	3546	
LCS 680-262352/16-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 680-262352/19-A	Lab Control Sample	Total/NA	Solid	3546	

TestAmerica Savannah

## QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

### GC Semi VOA (Continued)

#### Prep Batch: 262352 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-262352/15-A	Method Blank	Total/NA	Solid	3546	

#### Analysis Batch: 262568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-262210/5-A	Lab Control Sample	Total/NA	Solid	8151A	262210
MB 680-262210/4-A	Method Blank	Total/NA	Solid	8151A	262210

#### Analysis Batch: 262760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	8151A	262210

#### Analysis Batch: 262831

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	8081A_8082	262352
LCS 680-262352/16-A	Lab Control Sample	Total/NA	Solid	8081A_8082	262352
LCS 680-262352/19-A	Lab Control Sample	Total/NA	Solid	8081A_8082	262352
MB 680-262352/15-A	Method Blank	Total/NA	Solid	8081A_8082	262352

#### Analysis Batch: 262882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	8081A_8082	262352

## Metals

#### Prep Batch: 262620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	3050B	
680-86389-1 MS	RB-1046-0109	Total/NA	Solid	3050B	
680-86389-1 MSD	RB-1046-0109	Total/NA	Solid	3050B	
LCS 680-262620/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 680-262620/1-A	Method Blank	Total/NA	Solid	3050B	

#### Prep Batch: 262707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	7471A	
LCS 680-262707/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 680-262707/1-A	Method Blank	Total/NA	Solid	7471A	

#### Analysis Batch: 262794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	6020	262620
680-86389-1 MS	RB-1046-0109	Total/NA	Solid	6020	262620
680-86389-1 MSD	RB-1046-0109	Total/NA	Solid	6020	262620
LCS 680-262620/2-A	Lab Control Sample	Total/NA	Solid	6020	262620
MB 680-262620/1-A	Method Blank	Total/NA	Solid	6020	262620

#### Analysis Batch: 263105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	7471A	262707
LCS 680-262707/2-A	Lab Control Sample	Total/NA	Solid	7471A	262707

TestAmerica Savannah

# QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

## Metals (Continued)

### Analysis Batch: 263105 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-262707/1-A	Method Blank	Total/NA	Solid	7471A	262707

## General Chemistry

### Analysis Batch: 262329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	Moisture	

### Leach Batch: 262857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Soluble	Solid	DI Leach	
LCS 680-262857/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 680-262857/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 680-262857/1-A	Method Blank	Soluble	Solid	DI Leach	

### Analysis Batch: 262912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Soluble	Solid	9056	262857
LCS 680-262857/2-A	Lab Control Sample	Soluble	Solid	9056	262857
LCSD 680-262857/3-A	Lab Control Sample Dup	Soluble	Solid	9056	262857
MB 680-262857/1-A	Method Blank	Soluble	Solid	9056	262857

### Prep Batch: 263039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	9030B	
LCS 680-263039/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 680-263039/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
MB 680-263039/1-A	Method Blank	Total/NA	Solid	9030B	

### Leach Batch: 263054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	9013	
680-86389-1 MS	RB-1046-0109	Total/NA	Solid	9013	
680-86389-1 MSD	RB-1046-0109	Total/NA	Solid	9013	
680-86389-A-1-P MS ^20	680-86389-A-1-P MS ^20	Total/NA	Solid	9013	
680-86389-A-1-Q MSD ^20	680-86389-A-1-Q MSD ^20	Total/NA	Solid	9013	
LCS 680-263054/2-B	Lab Control Sample	Total/NA	Solid	9013	
MB 680-263054/1-B	Method Blank	Total/NA	Solid	9013	

### Analysis Batch: 263133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	9034	263039
LCS 680-263039/2-A	Lab Control Sample	Total/NA	Solid	9034	263039
LCSD 680-263039/3-A	Lab Control Sample Dup	Total/NA	Solid	9034	263039
MB 680-263039/1-A	Method Blank	Total/NA	Solid	9034	263039

### Prep Batch: 263178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	9012A	263054
680-86389-1 MS	RB-1046-0109	Total/NA	Solid	9012A	263054

TestAmerica Savannah

## QC Association Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

### General Chemistry (Continued)

#### Prep Batch: 263178 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1 MSD	RB-1046-0109	Total/NA	Solid	9012A	263054
680-86389-A-1-P MS ^20	680-86389-A-1-P MS ^20	Total/NA	Solid	9012A	263054
680-86389-A-1-Q MSD ^20	680-86389-A-1-Q MSD ^20	Total/NA	Solid	9012A	263054
LCS 680-263054/2-B	Lab Control Sample	Total/NA	Solid	9012A	263054
MB 680-263054/1-B	Method Blank	Total/NA	Solid	9012A	263054

#### Analysis Batch: 263256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	9012A	263178
680-86389-A-1-P MS ^20	680-86389-A-1-P MS ^20	Total/NA	Solid	9012A	263178
680-86389-A-1-Q MSD ^20	680-86389-A-1-Q MSD ^20	Total/NA	Solid	9012A	263178
LCS 680-263054/2-B	Lab Control Sample	Total/NA	Solid	9012A	263178
MB 680-263054/1-B	Method Blank	Total/NA	Solid	9012A	263178

#### Analysis Batch: 263263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-86389-1	RB-1046-0109	Total/NA	Solid	9012A	263178
680-86389-1 MS	RB-1046-0109	Total/NA	Solid	9012A	263178
680-86389-1 MSD	RB-1046-0109	Total/NA	Solid	9012A	263178
LCS 680-263054/2-B	Lab Control Sample	Total/NA	Solid	9012A	263178
MB 680-263054/1-B	Method Blank	Total/NA	Solid	9012A	263178

# Lab Chronicle

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: 680-86389-1**

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/10/13 09:46

Percent Solids: 74.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			262334	01/10/13 11:46	FS	TAL SAV
Total/NA	Analysis	8260B		5000	263264	01/18/13 13:39	RB	TAL SAV
Total/NA	Prep	3546			262348	01/10/13 17:58	AJW	TAL SAV
Total/NA	Analysis	8270C LL		100	262664	01/13/13 15:27	ND	TAL SAV
Total/NA	Prep	8151A			262210	01/10/13 11:28	CTR	TAL SAV
Total/NA	Analysis	8151A		10	262760	01/12/13 12:57	SMP	TAL SAV
Total/NA	Prep	3546			262352	01/11/13 16:57	AJW	TAL SAV
Total/NA	Analysis	8081A_8082		10	262831	01/15/13 06:37	JK	TAL SAV
Total/NA	Analysis	8081A_8082		40	262882	01/15/13 17:09	JK	TAL SAV
Total/NA	Prep	3050B			262620	01/14/13 09:27	UU	TAL SAV
Total/NA	Analysis	6020		1	262794	01/14/13 20:07	BR	TAL SAV
Total/NA	Prep	7471A			262707	01/14/13 15:14	UU	TAL SAV
Total/NA	Analysis	7471A		1	263105	01/16/13 14:54	BCB	TAL SAV
Total/NA	Analysis	Moisture		1	262329	01/10/13 11:31	FS	TAL SAV
Soluble	Leach	DI Leach			262857	01/14/13 11:00	PAT	TAL SAV
Soluble	Analysis	9056		5	262912	01/16/13 00:51	PAT	TAL SAV
Total/NA	Analysis	9034		1	263133	01/17/13 09:04	AJO	TAL SAV
Total/NA	Prep	9030B			263039	01/17/13 09:04	AJO	TAL SAV
Total/NA	Leach	9013			263054	01/17/13 12:00	DAM	TAL SAV
Total/NA	Prep	9012A			263178	01/18/13 07:50	DAM	TAL SAV
Total/NA	Analysis	9012A		20	263256	01/18/13 12:44	DAM	TAL SAV
Total/NA	Analysis	9012A		1	263263	01/18/13 12:29	DAM	TAL SAV

**Laboratory References:**

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

Serial Number 60110

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

**testAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

				TestAmerica Savannah 5102 LaRoche Avenue Savannah, GA 31404				Website: www.testamericainc.com Phone: (912) 354-7858 Fax: (912) 352-0165				
				Alternate Laboratory Name & Location				Phone: Fax:				
PROJECT REFERENCE <i>Hercules</i>		PROJECT NO. <i>4501795258</i>	PROJECT LOCATION (STATE) <i>Hattiesburg MS</i>	MATRIX TYPE	REQUIRED ANALYSIS				PAGE	OF		
TAL (LAB) PROJECT MANAGER		P.O. NUMBER	CONTRACT NO.								STANDARD REPORT DELIVERY	
CLIENT (SITE) PM		CLIENT PHONE	CLIENT FAX								DATE DUE <i>LTO</i>	
CLIENT NAME		CLIENT E-MAIL									EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT ADDRESS											DATE DUE <i>LTO</i>	
COMPANY CONTRACTING THIS WORK (if applicable)												NUMBER OF COOLERS SUBMITTED PER SHIPMENT: <i>1</i>
SAMPLE	SAMPLE IDENTIFICATION			NUMBER OF CONTAINERS SUBMITTED				REMARKS				
DATE	TIME				✓	✓	✓	✓	✓	✓	✓	
<i>1-9-13</i>	<i>1510</i>	<i>RB-1046-0109</i>									<i>UHC list</i>	
RELINQUISHED BY: (SIGNATURE) <i>John T. Parker</i>		DATE <i>1-9-13</i>	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	RELINQUISHED BY: (SIGNATURE)		DATE	TIME	
RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	RECEIVED BY: (SIGNATURE)		DATE	TIME	
LABORATORY USE ONLY												
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>Deborah C.</i>	DATE <i>1/10/13</i>	TIME <i>0946</i>	CUSTODY INTACT YES <input type="radio"/> NO <input checked="" type="radio"/>	CUSTODY SEAL NO.	SAVANNAH LOG NO. <i>680-86389</i>	LABORATORY REMARKS <i>3.8°C</i>						

## Login Sample Receipt Checklist

Client: Ashland Inc.

Job Number: 680-86389-1

Login Number: 86389

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Certification Summary

Client: Ashland Inc.

Project/Site: Hattiesburg Sludge RB-1046 UHC JAN 2013

TestAmerica Job ID: 680-86389-1

### Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAP	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAP	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-13
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAP	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAP	6	30690	06-30-13
Louisiana	NELAP	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAP	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAP	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAP	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Knoxville  
5815 Middlebrook Pike  
Knoxville, TN 37921  
Tel: (865)291-3000

TestAmerica Job ID: H3A110409

Client Project/Site: 680-86389-1

Client Project Description: Hattiesburg Sludge RB-1046 UHC

**For:**

Ashland Inc.  
Ashland Hercules Research Center  
500 Hercules Rd. Bldg 8139  
Wilmington, DE 19808

Attn: Timothy Hassett

Lidya Gulizia

Authorized for release by:

1/28/2013 3:31:51 PM

Lidya Gulizia  
Project Manager II  
[lidya.gulizia@testamericainc.com](mailto:lidya.gulizia@testamericainc.com)

Designee for

Terry Walker Wasmund  
Project Manager  
[terry.wasmund@testamericainc.com](mailto:terry.wasmund@testamericainc.com)

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Definitions/Glossary

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

### Qualifiers

#### DIOXIN

Qualifier	Qualifier Description
J	Estimated result. Result is less than the reporting limit.
Q	Estimated maximum possible concentration (EMPC).
B	Method blank contamination. The associated method blank contains the target analyte at a reportable level.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
⊗	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Detection Summary

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: H3A110409001**

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	9.9	Q B J	49	0.93	1	9.9	pg/g	1	♂	8290	Total
1,2,3,4,7,8-HxCDD	11	J	49	0.97	0.1	1.1	pg/g	1	♂	8290	Total
1,2,3,6,7,8-HxCDD	140		49	1.1	0.1	14	pg/g	1	♂	8290	Total
1,2,3,7,8,9-HxCDD	73		49	0.97	0.1	7.3	pg/g	1	♂	8290	Total
1,2,3,4,6,7,8-HpCDD	3000	B	49	2.0	0.01	30	pg/g	1	♂	8290	Total
OCDD	33000	B	99	0.75	0.0003	9.9	pg/g	1	♂	8290	Total
2,3,7,8-TCDF	18	B	9.9	2.2	0.1	1.8	pg/g	1	♂	8290	Total
1,2,3,7,8-PeCDF	6.7	J	49	0.81	0.03	0.20	pg/g	1	♂	8290	Total
2,3,4,7,8-PeCDF	28	J	49	0.99	0.3	8.4	pg/g	1	♂	8290	Total
1,2,3,4,7,8-HxCDF	22	Q J	49	0.46	0.1	2.2	pg/g	1	♂	8290	Total
1,2,3,6,7,8-HxCDF	11	J	49	0.49	0.1	1.1	pg/g	1	♂	8290	Total
2,3,4,6,7,8-HxCDF	8.0	B J	49	0.47	0.1	0.80	pg/g	1	♂	8290	Total
1,2,3,7,8,9-HxCDF	1.9	Q J	49	0.57	0.1	0.19	pg/g	1	♂	8290	Total
1,2,3,4,6,7,8-HpCDF	280	B	49	0.53	0.01	2.8	pg/g	1	♂	8290	Total
1,2,3,4,7,8,9-HpCDF	20	B J	49	0.79	0.01	0.20	pg/g	1	♂	8290	Total
OCDF	1100	B	99	0.38	0.0003	0.33	pg/g	1	♂	8290	Total

This Detection Summary does not include radiochemical test results.

TestAmerica Knoxville

# Client Sample Results

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: H3A110409001**

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/11/13 09:30

Percent Solids: 53

**Method: 8290 - Dioxins/Furans, HRGC/HRMS (8290)**

Analyte	Result	Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		9.9	0.74	1		pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,7,8-PeCDD</b>	<b>9.9</b>	<b>Q B J</b>	49	0.93	1	9.9	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,4,7,8-HxCDD</b>	<b>11</b>	<b>J</b>	49	0.97	0.1	1.1	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,6,7,8-HxCDD</b>	<b>140</b>		49	1.1	0.1	14	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,7,8,9-HxCDD</b>	<b>73</b>		49	0.97	0.1	7.3	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,4,6,7,8-HpCDD</b>	<b>3000</b>	<b>B</b>	49	2.0	0.01	30	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>OCDD</b>	<b>33000</b>	<b>B</b>	99	0.75	0.0003	9.9	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>2,3,7,8-TCDF</b>	<b>18</b>	<b>B</b>	9.9	2.2	0.1	1.8	pg/g	o	01/16/13 10:00	01/24/13 12:11	1
<b>1,2,3,7,8-PeCDF</b>	<b>6.7</b>	<b>J</b>	49	0.81	0.03	0.20	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>2,3,4,7,8-PeCDF</b>	<b>28</b>	<b>J</b>	49	0.99	0.3	8.4	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,4,7,8-HxCDF</b>	<b>22</b>	<b>Q J</b>	49	0.46	0.1	2.2	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,6,7,8-HxCDF</b>	<b>11</b>	<b>J</b>	49	0.49	0.1	1.1	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>2,3,4,6,7,8-HxCDF</b>	<b>8.0</b>	<b>B J</b>	49	0.47	0.1	0.80	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,7,8,9-HxCDF</b>	<b>1.9</b>	<b>Q J</b>	49	0.57	0.1	0.19	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,4,6,7,8-HpCDF</b>	<b>280</b>	<b>B</b>	49	0.53	0.01	2.8	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>1,2,3,4,7,8,9-HpCDF</b>	<b>20</b>	<b>B J</b>	49	0.79	0.01	0.20	pg/g	o	01/16/13 10:00	01/24/13 05:17	1
<b>OCDF</b>	<b>1100</b>	<b>B</b>	99	0.38	0.0003	0.33	pg/g	o	01/16/13 10:00	01/24/13 05:17	1

Total TEQ (WHO 2005)

90

Internal Standard	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	81		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,7,8-PeCDD	85		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,4,7,8-HxCDD	87		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,6,7,8-HxCDD	72		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,4,6,7,8-HpCDD	99		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-OCDD	94		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-2,3,7,8-TCDF	85		40 - 135	01/16/13 10:00	01/24/13 12:11	1
13C-1,2,3,7,8-PeCDF	83		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-2,3,4,7,8-PeCDF	81		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,4,7,8-HxCDF	79		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,6,7,8-HxCDF	73		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-2,3,4,6,7,8-HxCDF	81		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,7,8,9-HxCDF	78		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,4,6,7,8-HpCDF	82		40 - 135	01/16/13 10:00	01/24/13 05:17	1
13C-1,2,3,4,7,8,9-HpCDF	89		40 - 135	01/16/13 10:00	01/24/13 05:17	1

TestAmerica Knoxville

# Internal Standards Summary

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

## Method: 8290 - Dioxins/Furans, HRGC/HRMS (8290)

Matrix: Solid

Prep Type: Total

Lab Sample ID	Client Sample ID	Percent Internal Standard Recovery (Acceptance Limits)							
		TCDD (40-135)	1,2,3,7,8-Pe (40-135)	,2,3,4,7,8-H (40-135)	,2,3,6,7,8-H (40-135)	2,3,4,6,7,8-t (40-135)	13C-OCDD (40-135)	TCDF (40-135)	1,2,3,7,8-Pe (40-135)
H3A110409001	RB-1046-0109	81	85	87	72	99	94	83	
H3A110409001	RB-1046-0109							85	
H3A140000011B	Method Blank	75	85	78	85	83	95	73	85
H3A140000011C	Lab Control Sample	73	77	83	84	86	88	75	77
H3A140000011L	Lab Control Sample Dup	73	77	75	79	85	82	71	79
Percent Internal Standard Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	PeCDF2 (40-135)	,2,3,4,7,8-H (40-135)	HxCDF2 (40-135)	HxCDF3 (40-135)	HxCDF4 (40-135)	2,3,4,6,7,8-t (40-135)	2,3,4,7,8,9-t (40-135)	
		81	79	73	81	78	82	89	
H3A110409001	RB-1046-0109								
H3A110409001	RB-1046-0109								
H3A140000011B	Method Blank	81	78	77	78	76	77	79	
H3A140000011C	Lab Control Sample	76	83	81	79	82	83	87	
H3A140000011L	Lab Control Sample Dup	73	80	79	82	79	81	89	

### Internal Standard Legend

TCDD = 13C-2,3,7,8-TCDD

13C-1,2,3,7,8-PeCDD = 13C-1,2,3,7,8-PeCDD

13C-1,2,3,4,7,8-HxCDD = 13C-1,2,3,4,7,8-HxCDD

13C-1,2,3,6,7,8-HxCDD = 13C-1,2,3,6,7,8-HxCDD

13C-1,2,3,4,6,7,8-HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

13C-OCDD = 13C-OCDD

TCDF = 13C-2,3,7,8-TCDF

13C-1,2,3,7,8-PeCDF = 13C-1,2,3,7,8-PeCDF

PeCDF2 = 13C-2,3,4,7,8-PeCDF

13C-1,2,3,4,7,8-HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxCDF2 = 13C-1,2,3,6,7,8-HxCDF

HxCDF3 = 13C-2,3,4,6,7,8-HxCDF

HxCDF4 = 13C-1,2,3,7,8,9-HxCDF

13C-1,2,3,4,6,7,8-HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

13C-1,2,3,4,7,8,9-HpCDF = 13C-1,2,3,4,7,8,9-HpCDF

TestAmerica Knoxville

# QC Sample Results

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

## Method: 8290 - Dioxins/Furans, HRGC/HRMS (8290)

**Lab Sample ID: H3A140000011B**

**Matrix: Solid**

**Analysis Batch: 3014011**

**Client Sample ID: Method Blank**

**Prep Type: Total**

**Prep Batch: 3014011\_P**

Analyte	MB Result	MB Qualifier	ML	EDL	TEF	TEQ	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		1.0	0.021	1		pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,7,8-PeCDD	0.041	Q J	5.0	0.026	1	0.041	pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,4,7,8-HxCDD	ND		5.0	0.047	0.1		pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,6,7,8-HxCDD	ND		5.0	0.045	0.1		pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,7,8,9-HxCDD	ND		5.0	0.043	0.1		pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,4,6,7,8-HpCDD	0.19	J	5.0	0.057	0.01	0.0019	pg/g		01/16/13 10:00	01/24/13 04:16	1
OCDD	1.5	J	10	0.029	0.0003	0.00045	pg/g		01/16/13 10:00	01/24/13 04:16	1
2,3,7,8-TCDF	0.034	Q J	1.0	0.023	0.1	0.0034	pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,7,8-PeCDF	ND		5.0	0.031	0.03		pg/g		01/16/13 10:00	01/24/13 04:16	1
2,3,4,7,8-PeCDF	ND		5.0	0.031	0.3		pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,4,7,8-HxCDF	ND		5.0	0.033	0.1		pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,6,7,8-HxCDF	ND		5.0	0.031	0.1		pg/g		01/16/13 10:00	01/24/13 04:16	1
2,3,4,6,7,8-HxCDF	0.075	Q J	5.0	0.035	0.1	0.0075	pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,7,8,9-HxCDF	ND		5.0	0.045	0.1		pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,4,6,7,8-HpCDF	0.094	Q J	5.0	0.016	0.01	0.00094	pg/g		01/16/13 10:00	01/24/13 04:16	1
1,2,3,4,7,8,9-HpCDF	0.077	J	5.0	0.021	0.01	0.00077	pg/g		01/16/13 10:00	01/24/13 04:16	1
OCDF	0.36	J	10	0.025	0.0003	0.00011	pg/g		01/16/13 10:00	01/24/13 04:16	1
<b>Total TEQ</b>						<b>0.056</b>					

Internal Standard	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	75		40 - 135			
13C-1,2,3,7,8-PeCDD	85		40 - 135			
13C-1,2,3,4,7,8-HxCDD	78		40 - 135			
13C-1,2,3,6,7,8-HxCDD	85		40 - 135			
13C-1,2,3,4,6,7,8-HpCDD	83		40 - 135			
13C-OCDD	95		40 - 135			
13C-2,3,7,8-TCDF	73		40 - 135			
13C-1,2,3,7,8-PeCDF	85		40 - 135			
13C-2,3,4,7,8-PeCDF	81		40 - 135			
13C-1,2,3,4,7,8-HxCDF	78		40 - 135			
13C-1,2,3,6,7,8-HxCDF	77		40 - 135			
13C-2,3,4,6,7,8-HxCDF	78		40 - 135			
13C-1,2,3,7,8,9-HxCDF	76		40 - 135			
13C-1,2,3,4,6,7,8-HpCDF	77		40 - 135			
13C-1,2,3,4,7,8,9-HpCDF	79		40 - 135			

**Lab Sample ID: H3A140000011C**

**Matrix: Solid**

**Analysis Batch: 3014011**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total**

**Prep Batch: 3014011\_P**

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
2,3,7,8-TCDD	20.0	21.4		pg/g		107	79 - 129
1,2,3,7,8-PeCDD	100	110	B	pg/g		110	79 - 129
1,2,3,4,7,8-HxCDD	100	106		pg/g		106	73 - 123
1,2,3,6,7,8-HxCDD	100	105		pg/g		105	74 - 124
1,2,3,7,8,9-HxCDD	100	111		pg/g		111	70 - 124
1,2,3,4,6,7,8-HpCDF	100	112	B	pg/g		112	73 - 123

TestAmerica Knoxville

# QC Sample Results

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

## Method: 8290 - Dioxins/Furans, HRGC/HRMS (8290) (Continued)

**Lab Sample ID: H3A140000011C**

**Matrix: Solid**

**Analysis Batch: 3014011**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total**

**Prep Batch: 3014011\_P**

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits	%Rec.
		Result	Qualifier					
OCDD	200	225	B	pg/g		112	75 - 125	
2,3,7,8-TCDF	20.0	21.5	B	pg/g		107	75 - 125	
1,2,3,7,8-PeCDF	100	108		pg/g		108	74 - 124	
2,3,4,7,8-PeCDF	100	108		pg/g		108	75 - 125	
1,2,3,4,7,8-HxCDF	100	104		pg/g		104	75 - 125	
1,2,3,6,7,8-HxCDF	100	104		pg/g		104	76 - 126	
2,3,4,6,7,8-HxCDF	100	107	B	pg/g		107	76 - 126	
1,2,3,7,8,9-HxCDF	100	103		pg/g		103	77 - 127	
1,2,3,4,6,7,8-HpCDF	100	108	B	pg/g		108	77 - 127	
1,2,3,4,7,8,9-HpCDF	100	108	B	pg/g		108	73 - 123	
OCDF	200	183	B	pg/g		91	49 - 128	

Internal Standard	LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	73		40 - 135
13C-1,2,3,7,8-PeCDD	77		40 - 135
13C-1,2,3,4,7,8-HxCDD	83		40 - 135
13C-1,2,3,6,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	86		40 - 135
13C-OCDD	88		40 - 135
13C-2,3,7,8-TCDF	75		40 - 135
13C-1,2,3,7,8-PeCDF	77		40 - 135
13C-2,3,4,7,8-PeCDF	76		40 - 135
13C-1,2,3,4,7,8-HxCDF	83		40 - 135
13C-1,2,3,6,7,8-HxCDF	81		40 - 135
13C-2,3,4,6,7,8-HxCDF	79		40 - 135
13C-1,2,3,7,8,9-HxCDF	82		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	83		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	87		40 - 135

**Lab Sample ID: H3A140000011L**

**Matrix: Solid**

**Analysis Batch: 3014011**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total**

**Prep Batch: 3014011\_P**

Analyte	Spike Added	LCSD		Unit	D	%Rec	Limits	RPD
		Result	Qualifier					
2,3,7,8-TCDD	20.0	22.0		pg/g		110	79 - 129	2.6
1,2,3,7,8-PeCDD	100	111	B	pg/g		111	79 - 129	0.59
1,2,3,4,7,8-HxCDD	100	117		pg/g		117	73 - 123	9.4
1,2,3,6,7,8-HxCDD	100	110		pg/g		110	74 - 124	5.2
1,2,3,7,8,9-HxCDD	100	118		pg/g		118	70 - 124	6.3
1,2,3,4,6,7,8-HpCDD	100	113	B	pg/g		113	73 - 123	0.83
OCDD	200	230	B	pg/g		115	75 - 125	2.4
2,3,7,8-TCDF	20.0	22.3	B	pg/g		111	75 - 125	3.7
1,2,3,7,8-PeCDF	100	105		pg/g		105	74 - 124	2.5
2,3,4,7,8-PeCDF	100	112		pg/g		112	75 - 125	4.0
1,2,3,4,7,8-HxCDF	100	103		pg/g		103	75 - 125	0.57
1,2,3,6,7,8-HxCDF	100	103		pg/g		103	76 - 126	0.94
2,3,4,6,7,8-HxCDF	100	103	B	pg/g		103	76 - 126	3.2
1,2,3,7,8,9-HxCDF	100	102		pg/g		102	77 - 127	0.44

TestAmerica Knoxville

# QC Sample Results

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

## **Method: 8290 - Dioxins/Furans, HRGC/HRMS (8290) (Continued)**

**Lab Sample ID: H3A140000011L**

**Matrix: Solid**

**Analysis Batch: 3014011**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total**

**Prep Batch: 3014011\_P**

**%Rec.**

**RPD**

<b>Analyte</b>		<b>Spike Added</b>	<b>LCSD</b>	<b>LCSD</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>Limits</b>	<b>RPD</b>	<b>Limit</b>
			<b>Result</b>	<b>Qualifier</b>						
1,2,3,4,6,7,8-HpCDF		100	110	B	pg/g		110	77 - 127	1.6	15
1,2,3,4,7,8,9-HpCDF		100	102	B	pg/g		102	73 - 123	6.2	15
OCDF		200	183	B	pg/g		92	49 - 128	0.29	15

<b>Internal Standard</b>	<b>LCSD</b>	<b>LCSD</b>	<b>Limits</b>
		<b>%Recovery</b>	<b>Qualifier</b>
13C-2,3,7,8-TCDD	73		40 - 135
13C-1,2,3,7,8-PeCDD	77		40 - 135
13C-1,2,3,4,7,8-HxCDD	75		40 - 135
13C-1,2,3,6,7,8-HxCDD	79		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	85		40 - 135
13C-OCDD	82		40 - 135
13C-2,3,7,8-TCDF	71		40 - 135
13C-1,2,3,7,8-PeCDF	79		40 - 135
13C-2,3,4,7,8-PeCDF	73		40 - 135
13C-1,2,3,4,7,8-HxCDF	80		40 - 135
13C-1,2,3,6,7,8-HxCDF	79		40 - 135
13C-2,3,4,6,7,8-HxCDF	82		40 - 135
13C-1,2,3,7,8,9-HxCDF	79		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	81		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	89		40 - 135

TestAmerica Knoxville

# QC Association Summary

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

## Specialty Organics

### Analysis Batch: 3014011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
H3A110409001	RB-1046-0109	Total	Solid	8290	
H3A140000011B	Method Blank	Total	Solid	8290	
H3A140000011C	Lab Control Sample	Total	Solid	8290	
H3A140000011L	Lab Control Sample Dup	Total	Solid	8290	

### Prep Batch: 3014011\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
H3A110409001	RB-1046-0109	Total	Solid	8290	
H3A140000011B	Method Blank	Total	Solid	8290	
H3A140000011C	Lab Control Sample	Total	Solid	8290	
H3A140000011L	Lab Control Sample Dup	Total	Solid	8290	

## General Chemistry

### Analysis Batch: 3014017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
H3A110409001	RB-1046-0109	Total	Solid	160.3 MOD	

# Lab Chronicle

Client: TestAmerica Savannah  
Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

**Client Sample ID: RB-1046-0109**

**Lab Sample ID: H3A110409001**

Date Collected: 01/09/13 15:10

Matrix: Solid

Date Received: 01/11/13 09:30

Percent Solids: 53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	8290			3014011_P	01/16/13 10:00		TAL KNX
Total	Analysis	8290		1	3014011	01/24/13 05:17	LKM	TAL KNX
Total	Analysis	8290		1	3014011	01/24/13 12:11	KLW	TAL KNX
Total	Analysis	160.3 MOD		1	3014017	01/14/13 11:10	TN	TAL KNX

**Laboratory References:**

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

TestAmerica Knoxville

# TestAmerica

## ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

## THE LEADER IN ENVIRONMENTAL TESTING

*Harrisburg*

PROJECT REFERENCE <i>4501795258</i>	PROJECT NO. <i>4501795258</i>	PROJECT LOCATION (STATE) <i>PA</i>	MATRIX TYPE <i>5</i>	REQUERIED ANALYSIS			PAGE OF	
TAL (LAB) PROJECT MANAGER	PO. NUMBER	CONTRACT NO.					STANDARD REPORT <i>L70</i>	
CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX					EXPEDITED REPORT DELIVERY (SURCHARGE)	
CLIENT NAME	CLIENT E-MAIL						DATE DUE <i>L70</i>	
CLIENT ADDRESS							NUMBER OF COOLERS SUBMITTED <i>1</i>	
COMPANY CONTRACTING THIS WORK (if applicable)							REMARKS	
SAMPLE	SAMPLE IDENTIFICATION							
DATE	TIME							
<i>1-9-13 1510 1046 - 0109</i>								
REINQUISITIONED BY: (SIGNATURE) <i>J. Green</i>	DATE <i>1-9-13</i>	TIME	REINQUISHED BY: (SIGNATURE)				DATE TIME	
RECEIVED BY: (SIGNATURE) <i>J. Green</i>	DATE <i>1/10/13</i>	TIME	RECEIVED BY: (SIGNATURE)				DATE TIME	
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>J. Green</i>	DATE <i>1/10/13</i>	TIME	CUSTODY INTACT YES NO	CUSTODY SEAL NO.	SAVANNAH LOG NO. <i>680-86389</i>	LABORATORY REMARKS <i>3.8°C</i>	DATE TIME	
Website: www.testamericainc.com Phone: (912) 354-7858 Fax: (912) 352-0165								
Alternate Laboratory Name & location Phone: Fax:								

## Login Sample Receipt Checklist

Client: Ashland Inc.

Job Number: 680-86389-2

Login Number: 86389

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.8 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Certification Summary

Client: TestAmerica Savannah  
 Project/Site: 680-86389-1

TestAmerica Job ID: H3A110409

### Laboratory: TestAmerica Knoxville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0688	06-17-13
California	State Program	9	2423	06-30-14
Colorado	State Program	8	N/A	02-28-13
Connecticut	State Program	1	PH-0223	09-30-13
Florida	NELAP	4	E87177	06-30-13
Georgia	State Program	4	906	06-13-14
Hawaii	State Program	9	N/A	04-13-13
Indiana	State Program	5	C-TN-02	04-13-14
Iowa	State Program	7	375	08-01-14
Kansas	NELAP	7	E-10349	10-31-13
Kentucky	State Program	4	90101	12-31-13
L-A-B	DoD ELAP		L2311	02-13-13
Louisiana	NELAP	6	83979	06-30-13
Louisiana	NELAP Secondary AB	6	LA110001	12-31-13
Maryland	State Program	3	277	03-31-13
Michigan	State Program	5	9933	06-30-13
Nevada	State Program	9	TN00009	07-31-13
New Jersey	NELAP	2	TN001	06-30-13
New York	NELAP	2	10781	04-01-13
North Carolina DENR	State Program	4	64	12-31-13
North Carolina DHHS	State Program	4	21705	07-31-13
Ohio VAP	State Program	5	CL0059	06-08-13
Oklahoma	State Program	6	9415	08-30-13
Pennsylvania	NELAP	3	68-00576	12-31-13
South Carolina	State Program	4	84001	06-30-13
Tennessee	State Program	4	2014	04-13-14
Texas	NELAP	6	T104704380-TX	08-31-13
USDA	Federal		P330-11-00035	01-20-14
Utah	NELAP	8	QUAN3	06-30-13
Virginia	NELAP	3	480176	09-14-13
Virginia	State Program	3	165	06-30-13
Washington	State Program	10	C593	01-19-14
West Virginia	State Program	3	9955C	12-31-13
West Virginia DEP	State Program	3	345	04-30-13
Wisconsin	State Program	5	998044300	08-31-13

TestAmerica Knoxville